

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY**

---

IN RE: AETNA UCR LITIGATION,

This Document Relates To: ALL CASES

***FILED ELECTRONICALLY***

MDL NO. 2020

MASTER FILE NO. 2:07-CV-3541  
(FSH)

---

**DECLARATION OF JOSHUA LIPTON**

I, Joshua Lipton, hereby certify and state:

1. I am a partner with the law firm of Gibson, Dunn & Crutcher LLP, counsel for Defendants Aetna Health Inc. PA, Corp., Aetna Health Management, LLC, Aetna Life Insurance Company, Aetna Health and Life Insurance Company, Aetna Health Inc., and Aetna Insurance Company of Connecticut (collectively, “Aetna”).

2. I make this declaration in support of Aetna’s Motion to Exclude Certain Purported Expert Testimony.

**EXPERT REPORTS**

3. Attached hereto as Exhibit A is a true and correct copy of the expert report prepared by Dr. Stephen Foreman, dated April 6, 2010.

4. Attached hereto as Exhibit B is a true and correct copy of the responsive expert report prepared by Dr. Foreman, dated May 1, 2010.

5. Attached hereto as Exhibit C is a true and correct copy of the expert report prepared by Dr. Bernard Siskin, dated April 6, 2010.

6. Attached hereto as Exhibit D is a true and correct copy of the responsive expert report prepared by Dr. Siskin, dated April 30, 2010.

7. Attached hereto as Exhibit E is a true and correct copy of the expert report prepared by Dr. Gordon Rausser, dated April 6, 2010.

**DEPOSITION EXCERPTS**

8. Attached hereto as Exhibit F are excerpts from a true and correct copy of the deposition transcript of Dr. Foreman taken on May 17 and May 18, 2010.

9. Attached hereto as Exhibit G are excerpts from a true and correct copy of the deposition transcript of Dr. Siskin taken on May 13 and May 14, 2010.

10. Attached hereto as Exhibit H are excerpts from a true and correct copy of the deposition transcript of Dr. Rausser taken on May 20 and May 21, 2010.

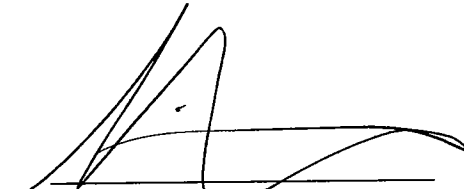
**MISCELLANEOUS ITEMS**

11. Attached hereto as Exhibit I are excerpts from a true and correct copy of the transcript of *Am. Med. Ass'n v. United Healthcare Corp.*, No. 00-cv-2800 (LMM) (S.D.N.Y.), Sept. 14, 2009 Hearing.

12. Attached hereto as Exhibit J is a letter from FAIR Health, Inc. President Robin Gelburd to MDR and PHCS customers, dated June 7, 2010, [http://www.fairhealthus.org/sites/fairhealthus.org/files/FH\\_communication\\_06\\_07\\_2010\\_0.pdf](http://www.fairhealthus.org/sites/fairhealthus.org/files/FH_communication_06_07_2010_0.pdf) (last visited July 1, 2010).

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Dated: July 2, 2010

  
Joshua Lipton

# **EXHIBIT A**

**UNITED STATES DISTRICT COURT  
DISTRICT OF NEW JERSEY**

-----  
IN RE: Aetna UCR LITIGATION,

MDL: 2020

This Document Relates To: ALL CASES

Master Case No. 07-3541 (FSH)(PS)  
-----

**Expert Report of Stephen Foreman, PhD, JD, MPA**

**I. Introduction**

1. I have been retained as an expert witness on behalf of Plaintiffs to render a report on the ability to demonstrate through competent econometric evidence that: (a) Defendants' conduct caused regarding the potential for establishment of class-wide impact and injury; and (b) such impact and injury may be calculated and determined on a class-wide basis

2. My opinions are based on generally accepted principles and methodology used in industrial organization economics as applied to health care settings and in antitrust cases, as well as fundamental principles of health care economics and finance as taught in university health administration programs.

3. I have specialized for more than 30 years in health economics, health care law, health care finance and health care administration, having served as a hospital CEO, teaching doctoral level courses in health economics, health care finance, health policy and health law and ethics at Robert Morris University in Pittsburgh, Pennsylvania.

4. In my professional work I study the health care reimbursement as it relates to health insurers, subscribers, and providers. I have authored peer reviewed journal articles relating to various aspects of health economics and health policy.

5. I served as special expert for the Attorney General of New York State during the investigation of health insurance firms' use of percentile databases for payment of out-of-network claims on behalf of enrollees. During the course of the investigation, I reviewed health insurance claims records supplied by a number of health insurance firms, including defendant, compiled data distributions to establish billed charge percentiles and compared the percentiles of the data distributions with the Prevailing Healthcare Charge System ("PHCS") percentiles that were used for payment for out-of-network physician services.

6. I currently serve as special expert to the contract monitor for the New York Attorney General's project involving production and distribution of unbiased, transparent data for the purpose of health insurance firms' payment of out-of-network claims (the FAIR Health Project).

7. In connection with the FAIR Health project, I have also been appointed Senior Research Professor at Syracuse University in which capacity I work with colleagues from Syracuse, the University of Rochester, Cornell University, the University of Illinois, Chicago, the University of Colorado, the State University of New York, Albany, and others to develop an interim correction for the PHCS and MDR percentile tables and permanent changes to them by developing and implementing methodologies that will make them as accurate and transparent as current science allows.

8. I have testified before the US Department of Justice and Federal Trade Commission as well as federal and state legislative bodies regarding health insurance and physician reimbursement.

9. I have investigated the healthcare market and have authored reports summarizing this work for a number of national and state professional organizations. I am a frequent speaker on these issues.

10. Based on my prior work experience and my review of various relevant data and materials hereinafter delineated, it is my opinion that:

- Contract provisions under which insurance firms commit to reimburse patients for medical care costs incurred for out-of-network services allow consumers broader choice of providers when they need medical care. This choice is of substantial value to them.

- Contract provisions provide reimbursement for out-of-network claims using “usual, customary and reasonable” (“UCR”) or “reasonable and customary” (“R&C”) standards for the same or similar services in the community.
- Application of billed charge percentile reimbursement limits by defendant using PHCS and MDR and other related reimbursement methods that reimburse consumers and providers at or below percentile billed charge levels did not and do not provide for reimbursement of usual, customary and reasonable charges or reasonable and customary charges for the same or similar services in the community.
- The classes suffer common impact from defendant’s continued use of inaccurate percentile data: Continued reimbursement by health insurance firms, including defendant, based on these methods, results in class-wide adverse impact injuring all consumers who hold a health insurance policy that provides out-of-network benefits as well as the providers who are reimbursed for out-of-network medical care services.
- The classes suffer common impact because continued reimbursement for out-of-network medical care using inaccurate percentile data reduces the value of health insurance policies held by all consumers. The reduction impacts the insurance policy value in the same manner for all consumers and also impacts the reimbursement received by providers in the same manner.
- The classes suffer common impact for continuing use of inaccurate percentile data. Continued reimbursement reductions by health insurance firms, including defendant, based on existing percentile products and practices that reduce the level of reimbursement, impact all providers who treat patients out-of-network and are reimbursed through the patients’ insurance plans.
- The classes suffered common impact from past use of inaccurate percentile data: Past payment practices by health insurance firms, including defendant, that used improper billed charge percentile mechanisms and other inappropriate reimbursement methods, were applied in the same way to process all claims. As a

result, these past payment practices had the same potential to injure all patients by requiring them to pay more for their medical care than they would have paid “but for” these mechanisms.

- The classes suffered common impact from past use of inaccurate percentile data because past payment by health insurance firms, including defendant, that used improper billed charge percentile mechanisms were applied to process all provider claims and had the same potential to injure all providers who were paid amounts lower than they would have been paid “but for” the improper percentile mechanisms.
- The method of calculation of damages for past injury will be the same for all subscriber class members who paid providers for out-of-network medical care at or above the UCR or R&C limits applied by defendant and will be the same for all providers who provided medical care to subscribers.
- The amount of damages for past injury to the classes can be calculated with reasonable certainty:
  - The first method to calculate class wide damages is to establish the difference between the billed charge and the allowed amount calculated using the flawed data base.
  - I can also calculate class wide damages by constructing models that describe what would have been utilized in a world absent the illegal conduct alleged in the complaint. These models provide a proxy or surrogate for an accurate UCR sufficient to calculate damages on a classwide basis. These models will, to the extent that accurate percentile data provides an appropriate UCR proxy apply generally accepted statistical and econometric methods to determine what health insurers, including defendant, would have paid “but for” the use of inaccurate percentile data with the amounts that were actually paid.
  - The first step would be development of a proxy for accurate usual, customary and reasonable percentile tables using health insurer claims data

- In the second step the accurate percentile tables would be substituted in defendant's claims processing software
- In the third step all past claims would be run with the accurate percentile tables
- In the fourth step the amounts actually paid would be subtracted from the amount that would have been paid but for use of inaccurate percentile tables to generate damages
- Defendant's claims databases can be used to determine who was damaged and in what amount;
- For some medical care procedures in some geographic areas there are insufficient numbers of claims to use percentile tables to establish a proxy for UCR or R&C. For these claims the health insurer should pay the billed charges. Alternatively, I could estimate damages by proper application of statistical and econometric methodologies based on data from areas that are known to include a sufficient number of claims to generate statistically reliable results;
- It will be possible to obtain data from which the accurate percentile tables can be calculated: Health insurer claims data has been obtained from defendant in this case and from defendants in related cases through discovery.
- Health insurer claims data can be supplemented using Medicare and Medicaid claims data.
- To the extent deemed necessary and appropriate, health insurer claims data can be supplemented from other health insurers by subpoena
- The claims data can be used to establish accurate billed charge percentile levels with clear delineation of methods and algorithms used to generate them; and
- For this calculation billed charge percentile levels can be developed using current concepts of geographic area and medical care procedure used by



defendants or by developing improved concepts of procedure and geography to reasonably represent for the same or similar services in the community.

- Defendant's records indicate whether payment was made directly to patients or whether providers were paid under assignment of benefits.

## **II. Education, experience and qualifications**

11. My educational background includes:

- A PhD in Health Policy and Administration from the University of California, Berkeley with a concentration in Health Economics (1994).
- A Master of Public Administration from the Kennedy School of Government, Harvard University (1989).
- A Doctor of Jurisprudence with Honors from the University of North Carolina (1976).

12. I currently serve as Associate Professor of Health Administration and Economics at Robert Morris University, Pittsburgh, Pennsylvania, where I teach courses in microeconomics, macroeconomics, health law and ethics, health care finance and health economics.

13. I have served on Governor Rendell's Task Force on Health Care Reform and on the patient safety committee of a health system in Southwest Pennsylvania. I serve as advisor for medical care payment to the Delaware Valley Health Care Coalition, a health purchasing cooperative for more than 200 unions.

14. I have served as an expert to the New York Attorney General for out-of-network health insurance payment issues and as an expert to the contract monitor (and Senior Research Professor) for the New York Attorney General's FAIR Health project involving the establishment of accurate and transparent percentile for out-of-network health insurance payment.

15. On behalf of the Medical Society of New Jersey, I have evaluated a proposed physician fee schedule for automobile accident injuries developed by Ingenix consultants.

16. I have recently completed service as a Fulbright Scholar, providing lectures in health policy including health administration, health care management, health economics,

and health care finance at Crimea State Medical University, Simferopol, Crimea. I prepared a White Paper on national health reform in Ukraine published by the Crimean Verkhovna Rada.

17. My experience includes work as a nationally recognized hospital revenue bond finance attorney and service as a health system president and chief executive officer.

18. I provide health economics and health administration consulting services for state government, medical societies, law firms and labor organizations. These services include reviews of the structure and performance of the health care industry and provider reimbursement.

19. I have prepared and continue to prepare and conduct peer reviewed research and publications in the areas of health policy, health administration and management, health economics, health care finance and health care law.

20. My curriculum vitae is enclosed as Exhibit A.

### **III. Materials reviewed**

21. In preparation for this report I have reviewed the materials contained in Exhibit B.

### **IV. Factual background**

22. Historically, medical care was a “fee for service” endeavor. Patients received medical care services from physicians, physicians billed them fees for services rendered and patients paid for such services themselves, “out of pocket.” (Raffel, Raffel, & Barsukiewicz, 2002)

23. The first firms to offer health insurance for physician services were Blue Shield plans. Blue Shield “reimbursed” physicians on behalf of patients for the physician’s “billed charge.” Blue Shield reimbursed physicians so long as their fees were not higher than the fees charged by other physicians in the area, the “usual, customary and reasonable (UCR) payment system. (Sandy, Bodenheimer, Pawlson, & Starfield, 2009). As other providers’ services began

to be insured, the UCR system was extended to them. As other health insurers began to provide coverage for medical care they too adopted the UCR system.

24. When Medicare was developed in the 1960s, the program reimbursed providers on a fee for service basis as well. The usual, customary and reasonable system was used by Medicare order to limit payment. (Oliver, 1993).

25. During the 1980s preferred provider organizations (PPOs) and point of service plans (POS) and other health care financing products began to offer coverage that reimbursed most or all of the cost of medical care claims for patients who received care from a network of physicians retained by health insurers (“in network” providers) and a different level (usually a specified percentage) of costs for care received from out-of-network providers. This type of coverage forms the basis for out-of-network service payment issues.

26. Reimbursement for out-of-network medical care is often limited by contract to “usual, customary and reasonable” medical care costs. (Aetna, 2010). As with traditional fee for service indemnity insurance, these limits were established using percentiles of billed charges as limits. (Aetna, 2010). Aetna primarily used the Ingenix PCHS database billed charge percentiles to establish reimbursement limits. Two of its subsidiaries including Aetna Student Health f/k/a Chickering, used the MDR percentile data to establish reimbursement limits.<sup>1</sup>

27. Some health insurers, including Defendant, use the term “reasonable and customary” rather than “usual, customary and reasonable.”<sup>2</sup>

28. In practice Aetna considers reasonable and customary or reasonable or usual and customary to be a percentile of billed charges for the same or similar service in an area.<sup>3</sup> (Aetna, 2010); The way that Aetna determines the percentile of billed charges is to use percentile data furnished by PHCS and MDR by Ingenix.<sup>4</sup>

29. Aetna also makes it clear that: “If there are not enough charges (less than 9) in the databases for a service in a particular zip code, we may use “derived charge data” instead.”<sup>5</sup>

---

<sup>1</sup> Deposition (Rough) of James Cross dated March 23, 2010 (“Cross Depo.”), pp. 61-62, 65.

<sup>2</sup> AET-00000502 at 509 (Owens Corning Plan); AET-00296986 (Reasonable and Customary Policy Overview).

<sup>3</sup> Cross Depo., pp. 77-78; AET-00296986 (Reasonable and Customary Policy Overview).

<sup>4</sup> Cross Depo., p. 88; Deposition (Rough) of Deborah Justo dated March 25 2010 (“Justo Depo.”), pp. 162: AET-00296986 (Reasonable and Customary Policy Overview).

<sup>5</sup> AET-00296986 (Reasonable and Customary Policy Overview); Cross Depo. at 71.

30. Two systems of estimating payment percentiles for use in UCR determinations have developed, the Prevailing Health Care Charges System or PHCS (by the Health Insurance Association of America – HIAA) and the Medical Data Research system or MDR (by Medicode, Inc. a Salt Lake City consulting firm).<sup>6</sup>

31. In the mid to late 1990s a subsidiary of United HealthGroup, Ingenix, acquired both the MDR and PHCS giving it nearly all of the market for percentile data products and creating a monopoly for percentile data.<sup>7</sup> (Committee on Commerce, Science and Transportation, Office of Oversight and Investigations, 2009).) at 1, 3.

32. The MDR and PHCS are maintained using data contributed by some but by no means all, of health insurers.<sup>8</sup> Throughout the class period the number of data contributors has decreased from over 200 contributors to slightly more than 100 contributors in 2008.<sup>9</sup>

33. The contributed data include the physician's billed charge, the medical care procedure (CPT code), the place of service (Geozip), date of service, in network and out-of-network service, allowed charges, payment modifiers, and (usually) physician specialty.<sup>10</sup>

34. The data are processed by Ingenix using a number of processing algorithms.<sup>11</sup>

35. Analysis of the PHCS and MDR by Dr. Bernard Siskin found that the collection and processing of the data posed a range of problems including, among other things, (a) the lack of representativeness of the contributed data, (b) inappropriate use of a high/low screen to reduce percentile levels, (c) use of dated data and the absence of any procedures to audit data submissions for completeness or accuracy; and (d) the prescreening or selective contribution of data by various participating health insurers. Siskin Report, pp. 2-12.

36. The Ingenix data are used by health insurers to limit payment to subscribers and providers for out-of-network medical care.

---

<sup>6</sup> INGENIXMDL000109228 at 230 (Ingenix Benchmarking Products presentation).

<sup>7</sup> INGENIX01800147 at 148 (MDR & PHCS Databases – Product Plan 2000 (noting in 2000 Ingenix controls at least 60-70% of the market and only knows of two potential competitors)); INGENIXMDL000541071 at 79 (2006 All Hands meeting – Ingenix stating it owns 80% of the market share and identifying only one primary competitor).

<sup>8</sup> INGENIXMDL000109228 at 235 (Ingenix Benchmarking Products presentation).

<sup>9</sup> INGENIX01801276 at 1278 (noting 200+ contributors in 2004); INGENIXMDL000185872 at 873 (Email stating 108 contributors as of May 2009); “Seare Aff. ¶19

<sup>10</sup> INGENIXMDL000257826 at 838 (MDR/PHCS Data Contribution Manual).

<sup>11</sup> INGENIXMDL000457826 at 828 “Seare Aff. ¶14).

**V. The New York Attorney General Investigation**

37. My work for the New York Attorney General involved evaluation of billed charges for 20 types of procedures in five New York counties and comparisons of amounts actually paid by several large health insurers with amounts that would be expected to be paid determined from percentiles established using health insurers' own billed charge claims experience.

38. The medical procedures that were used for the comparison were selected on the basis of ten common procedures and ten expensive procedures.

39. The five counties were selected based on population and location (diverse parts of the state).

40. All health insurers who billed charges for the 20 procedures in the five counties were subpoenaed for 2002-2007. The data were cleaned and entered into datasets. Descriptive statistics were generated using Statistical Applications Software (SAS). SAS is a well known industry standard statistical applications software package that is used by health economists, econometricians and statisticians for data analysis.

41. Medicare claims data were obtained in the form of limited data set five percent carrier files for 2006.

42. Ingenix PHCS rate tables were obtained for 2006 and 2007.

43. Percentile distributions were generated for the 20 CPT codes for all health insurers and for the individual carriers using the New York data.

44. Percentile distributions were also generated using the Medicare data.

45. Percentiles were generated using United data, CIGNA data, and Aetna data individually.

46. The distributions and percentiles for all New York, Medicare and United, CIGNA and Aetna were compared with the PHCS tables.

47. A simulation was developed that compared amounts allowed by United, CIGNA and Aetna and all carriers at the 75<sup>th</sup> percentile to amounts that would be expected to have been paid if the 75<sup>th</sup> percentile were established using actual billed charge data.

48. The Report focused on evaluation and management codes.

49. The results of this intensive investigation are described in the New York Attorney General's Code Blue Report.

50. The Attorney General found a range of problems with use of the Ingenix data to pay out-of-network physician claims. "We conclude that the consumer reimbursement system is code blue and needs dramatic reform to protect consumers. Analysis discloses that for ordinary doctor's office visits, the Ingenix databases understate market rate by up to 28 percent across the state."<sup>12</sup> Continued review of the data leads me to believe that the understatement may be even greater than the level found during the Attorney General investigation.

51. Although the work and analysis that I've conducted since the publication of the Code Blue report has confirmed my confidence in the report's findings and conclusions, for the purposes of this report, I am not relying on the New York data or any of the work product from the 2008 investigation.

52. The Attorney General's Investigation concluded with a number of settlements with United and other health insurance firms (deferred prosecution agreements) which mandated certain important reforms including but not limited to that the PHCS and MDR would be transferred to a new nonprofit firm (FAIR Health) that would change the way that the data are collected, processed and distributed in order to provide for greater accuracy and transparency, and that the health insurance firms would use the new data for payment for out-of-network physician claims.

## **VI. FAIR Health**

53. FAIR Health is a nonprofit corporation established to assume responsibility for production and distribution of the MDR and PHCS rate tables in an accurate, transparent and open manner as well as providing consumers with a way to ascertain and compare out-of-network physician pricing.

54. The New York Attorney General and FAIR Health have tasked an independent group of researchers from a number of prominent New York universities (and others) with developing and implementing recommendations for modifications to MDR and PHCS to achieve the

---

<sup>12</sup> New York State Attorney General, The Consumer Reimbursement System is Code Blue, Executive Summary.

objectives of accuracy and transparency for the data and the rate tables. The universities involved (called the Upstate Research Group) include Syracuse, Rochester, Cornell, SUNY Buffalo, Colorado, Robert Morris and the Illinois, Chicago and SUNY Albany.

55. An independent contract monitor has been tasked with ensuring that both FAIR Health and the Upstate Research Group accomplish the tasks envisioned for the project.

56. I have been employed both as independent expert to the contract monitor and as a senior research scientist at Syracuse to help provide assistance and leadership to the project.

57. The changes to MDR and PHCS will be accomplished in two stages or phases. In Phase One the Upstate Research Group will make recommendations to FAIR Health regarding temporary changes that can be accomplished given the expediency of time and available data to make the rate tables more accurate and transparent.

58. For Phase Two the Upstate Research Group will make recommendations to FAIR Health regarding full and complete overhaul of the data and the rate tables in order to provide optimal accuracy and transparency.

59. The Upstate Research Group has conducted planning sessions for Phase One and Phase Two and has provided confidential reports to FAIR Health containing recommendations. I have been involved in providing expertise and leadership for these activities.

60. The Upstate Research Group is involved in evaluating data subpoenaed by the New York Attorney General, Medicare data, data maintained by Ingenix, and other information, in order to accomplish Phase One. I have been involved in providing expertise and leadership for these activities.

61. I am not relying on any data gained or developed from the FAIR Health project or the New York Attorney General investigation in providing this report, although the work I have performed in connection with the project has offered me useful insights into the methods and conduct used by Aetna and other data-contributing organizations to Ingenix.

## VII. Health Reform

62. The recently enacted Health Reform Act adds a new provision regarding, among other things, the creation of more defensible fee schedules:

### SEC. 2719A. PATIENT PROTECTIONS.

#### (d) MEDICAL REIMBURSEMENT DATA CENTERS.—

##### (1) FUNCTIONS.—A center established under subsection (c)(1)(C) shall—

(A) develop fee schedules and other database tools that fairly and accurately reflect market rates for medical services and the geographic differences in those rates;

(B) use the best available statistical methods and data processing technology to develop such fee schedules and other database tools;

(C) regularly update such fee schedules and other database tools to reflect changes in charges for medical services;

(D) make health care cost information readily available to the public through an Internet website that allows consumers to understand the amounts that health care providers in their area charge for particular medical services; and

(E) regularly publish information concerning the statistical methodologies used by the center to analyze health charge data and make such data available to researchers and policy makers.

Health Reform Act, §10101 (Mar. 2010).

63. Clearly, Congress believes that data can be used to develop physician fee schedules that reflect usual, customary and reasonable market rates for medical care reflecting geographic differences in those rates.

64. Congress intends that new medical reimbursement data centers will use best available statistical methods data processing technology to develop fee schedules and database tools, that the fee schedules and data base tools be regularly updated, that health care cost information be available on the Internet and that information about statistical methods be published and data be made available.

65. The existing work of the Upstate Research Group and FAIR Health will accomplish each of the aims that Congress included in the Health Reform Act: collection of the most



accurate data possible; development of database tools that fairly and accurately reflect market rates for medical services and the geographic (and provider) differences that impact those rates; regular updates of the tools, methods and data processing technology; cost information that is available to consumers on the Internet and with transparency through publication of methodology and access to data by researchers and policy makers.

66. The approach developed by the New York Attorney General, FAIR Health and the Upstate Research Group can be applied to in a broad range of settings including the establishment of damages in settings where health insurers have based payments on inappropriate data collection and processing and questionable statistical methods.

### **VIII. Ingenix**

67. Ingenix provides percentile database percentile rate tables to health insurers for use in limiting payment to subscribers and medical care providers for out-of-network services.

68. There are very few other firms that supply percentile software.<sup>13</sup> (Committee on Commerce, Science and Transportation, Office of Oversight and Investigations, 2009) at 3. The products offered by other firms have a very small market share and are developed using surveys or Medicare RBRVS.<sup>14</sup>

69. Ingenix holds most of the market for percentile data products.<sup>15</sup> (Committee on Commerce, Science and Transportation, Office of Oversight and Investigations, 2009) at 1, 3.

70. In order to build its rate tables Ingenix collects data from health insurers relating to billed charges from medical care providers. Aetna and others mutually cooperated by contributing data to Ingenix.<sup>16</sup>

71. As noted above, in 2004 Ingenix had over 200 data contributors.<sup>17</sup> . By 2008 Ingenix had slightly more than 100 data contributors.<sup>18</sup>

<sup>13</sup> INGENIXMDL000456618 at 625 (noting only key competitor is Captiva at Ingenix all-hands meeting); INGENIXMDL000541071 (competitive analysis of Ingenix's only competitor – Captiva).

<sup>14</sup> AET-00913905 (white paper discussing Captiva); INGENIXMDL000541071 at 80 (competitive analysis of Captiva).

<sup>15</sup> INGENIXMDL000541071 at 79 (Ingenix stating it owns 80% of the benchmarking market).

<sup>16</sup> INGENIXMDL000257826 at 830 (MDR/PHCS Data Contribution Manual); Seare Aff. ¶ 30; Gee Depo., p. 35.

<sup>17</sup> INGENIX01801276 at 1278 (noting 200+ contributors in 2004).

<sup>18</sup> INGENIXMDL000248741 at 742 (133 data contributors in 2008); INGENIXMDL000185872 at 873 (Email stating 108 contributors as of May 2009).

72. The data are contributed in exchange for reduced prices for the percentile rate tables. Ingenix states that it requires data contributors to certify:

- Data is from actual claims
- Unaltered data
- Place of service zip code has been provided
- Only non-discounted fee-for-service charges are included
- 100% of claims received for the submission period<sup>19</sup>

**A. Accuracy and representativeness of the data**

73. Ingenix does not perform any statistical analysis to ascertain whether contributors comply with the certifications.<sup>20</sup> As described in the Siskin Report, at least one large contributor, Aetna, did not comply with the certifications and applied internal editing to the data it contributed to Ingenix. Siskin Supp. Report, p. 10;

74. Aetna's representatives admit that Aetna applied a "profiling" process prior to submission of data to Ingenix which results in the submission of pre-scrubbed data to Ingenix.<sup>21, 22</sup> Other admissions acknowledge that Aetna "removed outliers" from the data before submitting it to Ingenix with the understanding that Ingenix would also remove outliers.<sup>23</sup>

75. At some point, Aetna representatives made it clear to Ingenix that it had not complied with the certification.<sup>24</sup> Ingenix representatives initiated a dialogue that concluded with issues of an altered certification.<sup>25</sup> Ingenix representatives contacted Aetna to convince Aetna to change its certification answers..<sup>26</sup>

---

<sup>19</sup> Gee Depo. at 44, 83-85, 368-369; INGENIXMDL000202216 (Data Contribution Submission Form); INGENIXMDL00004623 (2010 Data Contribution Submission Form).

<sup>20</sup> Gee Depo. at 91-92.

<sup>21</sup> A difference without a statistical distinction.

<sup>22</sup> Justo Depo., pp. 81-82.

<sup>23</sup> AET-01163366 (MP&NT Policy and Support).

<sup>24</sup> Justo Depo., pp. 92-96.

<sup>25</sup> Justo Depo., pp. 150-152.

<sup>26</sup> Justo Depo., pp. 150-152.

76. It is not known whether Ingenix initiated any investigation of the impact of Aetna's policy on the percentiles that it distributed for usual, customary and reasonable determinations or took any steps to correct any adverse impact on the data.

77. ARIMA time series analysis, econometric time series cross section pooling and non parametric distribution comparisons can be used to determine whether there has been a change in the composition of data contributed by a carrier over time. There is no indication that the PHCS data contributions were ever subjected to such analysis.

78. There is no way to determine what portion of the total of all billed charges in a geographic area claims are represented by the Ingenix data. Ingenix does not perform statistical analysis to ascertain the representativeness of the data contribution or to correct for any lack of representativeness. Siskin Report, pp. 27-28; Siskin Supp. Report, p. 12.

79. The data are contributed by health insurers to Ingenix by mutual agreement.<sup>27</sup> The contributors have an inherent conflict of interest.<sup>28</sup>

80. To the extent that insurers contribute high values to Ingenix, the Ingenix rate tables will increase and the amount that they pay providers will rise. Therefore, insurers have incentives not to contribute higher billed charges. Insurers that reimburse at higher levels have incentives not to contribute their data at all.

81. The fact that the Ingenix data does not contain all billed charge data for a particular geozip / CPT combination<sup>29</sup> and the inherent conflict of interest on the part of the contributors suggests that the percentiles contained in the Ingenix data may well not represent usual, customary and reasonable charges for like or similar services in the community.

#### **B. Differences in Provider Qualifications**

82. For a given CPT code the Ingenix rate tables do not differentiate between or among providers based on licensure, specialization, experience, qualifications or specialty. This provides

---

<sup>27</sup> Gee Depo. at 33.

<sup>28</sup> NYAG Report, *passim*.

<sup>29</sup> Justo draft Depo. at 1762-4 [Aetna].

an underlying source of error in the use of percentile rate tables constructed with contributed data.<sup>30</sup> Siskin Report, p. 11.

**C. The high low screen**

83. Ingenix engages in what it describes to be a “data validation” process.<sup>31</sup>

84. The validation process includes consideration of whether the data has a valid zip codes, a valid CPT code, whether the dates of service are appropriate, consideration of whether modifiers could potentially impact fees and looking for data that would be otherwise unreliable.<sup>32</sup>

85. The data validation process includes a procedure called a “high-low screen” in which values below and above a given percentile are eliminated from the data. Siskin Report, pp. 12, 14.

86. The “high low screen” is imposed to deal with outliers.<sup>33</sup>

87. The high low screen used by Ingenix was developed in the 1980s by Tukey to identify outliers. (Tukey, 1977).

88. Tukey’s identification did not propose automatic elimination of extreme values identified as outliers.

89. The validation process eliminates data if it falls outside a range computed with reference to a multiple of the 50<sup>th</sup> percentile and 80<sup>th</sup> percentile calculated using prior years’ limits.<sup>34</sup>

90. Outliers are data with values that differ substantially from the values for other data in a data set. (Gravetter & Wallnau, 2008).

91. Outliers impact averages and coefficients in parametric models. Within data ranges of five to 95% outlier have no impact on percentile limits. Improper elimination of outliers can change percentile limits.

---

<sup>30</sup> Gee Depo., pp. 237-238, 363-365.

<sup>31</sup> INGENIXMDL000109228 at 236 (Ingenix Benchmarking Products presentation); Seare Aff. ¶¶ 23-24.

<sup>32</sup> Seare Aff. ¶¶ 23-24; Gee Depo., p. 54; INGENIXMDL000109228 at 236 (Ingenix Benchmarking Products presentation).

<sup>33</sup> Gee Depo., pp. 85-87.

<sup>34</sup> Gee Depo., pp. 85-87.

92. In normally distributed data three observations in 1000 can be expected to fall outside three standards deviations of the mean. (Gravetter & Wallnau, 2008).

93. There is no reason to believe that billed charge claims data would be normally distributed; rather they would be expected to be right skewed.<sup>35</sup>

94. Scientific theory does not justify formulaic rejection of medical claims data used to construct percentile nonparametric data distributions on the basis that they are outliers. Scientific theory does not support identification of more than one half of one percent of data elements as outliers in a data set that has enough information to permit computation of percentiles. (Gravetter & Wallnau, 2008).

95. The high low screen provides a decidedly downward bias to the Ingenix rate tables. Siskin Report, p. 12.

96. The Ingenix high low screen does not identify “outliers” based on current data. The values that fix the high low screen are developed using prior period data, not current data.<sup>36</sup> . It discards new data that fails to fall within ranges calculated as a high low screen using data from prior periods.

97. As a result, the high low screen limits in advance the values that percentile rate tables can take on in future time periods. The way that the limits are applied has the potential to create a “regression to the median” for the percentile data.

98. As a result, the high low screen a priori fixes (not based on the data) limits on percentile values that will be produced when data are collected and processed during later periods.

99. The illustrative simulation contained in Appendix C shows how the use of the high low screen using prior period high low values works to reduce percentile values over time and, thereby, to reduce payment.

100. In the simulation, where the 80<sup>th</sup> percentile is used to establish a surrogate for UCR, the high low screen systematically reduces the 80th percentile from \$90 in year one to \$80 in year two and to \$70 in year three, stabilizing the value of the 80th percentile thereafter. Absent

---

<sup>35</sup> INGENIXMDL000189345 at 384-86 (Gee testifying in First Care Chiropractic Center, Inc. v. Progressive Ins. Co., Case no. SCO-03-9095, that she would expect billed charge distribution to have a long right tail).

<sup>36</sup> Gee Depo., pp. 38-42.

the high low screen the 80<sup>th</sup> percentile would have remained at \$90 and would have moved upward to reflect medical care cost inflation had it occurred.

101. The reduction of the 80<sup>th</sup> percentile in the simulation systematically reduces allowed charge amounts for payment for medical care procedures.

102. The high low screen would be expected to systematically reduce percentile limits over time for percentiles greater than the 50<sup>th</sup> percentile.

103. By applying the high low screen, 21 of the most expensive physician visits would be excluded from the data in year two. Then process identifies 21% of the observations as outliers. The process does not meet the definition of outlier identification.

104. In a right skewed distribution that is reflective of medical care billed charges the impact of the high low screen will be to eliminate more expensive billings from the data than inexpensive and to reduce allowed amounts because the dollar value of expensive procedures eliminated will be far greater than inexpensive procedures. The screen will have the effect of collapsing the range of the billed charge data which will, in turn, have the effect of identifying substantial numbers of observations in the data as outliers. Use of prior period data to calculate the high low screen (rather than current data) has the effect of limiting upward increases in percentile limits even when the market evidences medical care cost inflation.

#### **D. Mean to median data rejection**

105. HIAA applied a mean to median test for data validation. Siskin Report. There is no indication whether Ingenix retains or has dropped the mean to median test.

106. For each data contribution the mean to median test computes the mean (nationally) for each CPT code and the median for that code for all of the data without regard to geozip. The process divides the mean by the median. If this ratio exceeds 1.5 for medical procedures CPT codes and 2.5 for surgical procedure CPT codes the data are eliminated.

107. The mean for a group of billed charges could be substantially higher than the median if there are outlier billed charges or if there are a substantial number of "high" charges without regard to outliers. The presence of outliers or a substantial number of high charges could occur as a result of a statistical anomaly or reporting error. However, it would more

commonly occur as the result of the demographics of the providers who have produced the billed charges.

108. For example, the application of the mean to median ratio test to data regardless of geography creates a substantial possibility that data will be rejected when it consists of a substantial number of lower billed charges from an area with lower price levels (for example, a less urban area) with a sufficient number of higher billed charges from a high cost (metropolitan suburban) area.

109. The effect of the mean to median ratio test is to artificially reduce the percentile values above the 50<sup>th</sup> percentile.

110. The illustrative simulation in Exhibit C shows how this can work in practice. The simulation shows two data submissions of 50 claims each, Group 1 and Group 2 where the median for Group 1 is \$50, the mean for the group is \$61.10 and the 80<sup>th</sup> percentile payment limit for the group is \$50 and where the median for Group 2 is \$50, the mean is \$76.50 and the 80<sup>th</sup> percentile is \$105.

111. The mean to median ratio test rejects the data for Group 2 in the simulation. Thus, the 80<sup>th</sup> percentile drops from \$100 for the combination of Groups 1 and 2 to \$50. Application of \$50 for the 80<sup>th</sup> percentile limit drops payment from \$6740 to \$4990.

112. By using the mean to median ratio test with aggregated percentile values for higher cost geographic areas, UCR determinations are systematically reduced.

#### **E. Relative value imputation**

113. All of the MDR percentile limits are produced using relative value imputation. A number of the PHCS percentile limits are produced using this technique.<sup>37</sup>

114. No scientific justification for data pooling is provided for geozip / CPT combinations for which there are sufficient amounts of data to establish percentile limits. The imputation process means that the billed charge percentiles contained in MDR do not represent percentiles for the same or similar medical care procedures in the community.

---

<sup>37</sup> Cross Depo., pp. 71-72; INGENIXMDL000109228 at 241-42 (Ingenix Benchmarking Products presentation); INGENIXMDL000451135 (Description of MDR and PHCS module characteristics).

115. The process permits imputation of a derived value for geozip / CPT combinations for which are few or no data for the establishment of percentile limits.

116. The process limits by dividing billed charges for a procedure by a relative value for the procedure developed “internally” by Ingenix, then arraying these “normalized” amounts, finding percentile values for the array and multiplying back the relative values for the CPT codes to impute a percentile value.

117. PHCS limits are produced using a different relative value for the same CPT codes than for MDR.<sup>38</sup> This produces different percentile limits for the same geozip and CPT combination for MDR and for PHCS.<sup>39</sup>

118. Accuracy for the process is dependent on accurate relative values. MDR relative values are different from PHCS relative values and both of these are different from Medicare relative values. Procedures for verifying accuracy of the relative values are not disclosed and there is no indication that the relative scales used for MDR and PHCS have been independently or scientifically verified.

119. In addition to the question of the accuracy of the relative values, the process produces other distortions. The illustrative simulation in Appendix C includes an example of the use of the process can influence the percentiles.

120. In the illustration, by combining normalized values for CPT code 99211 (simple office visit with a relative value of one) and 99215 (complicated office visit with a relative value of four) the 80<sup>th</sup> percentile limits calculated with normalized relative values reduce allowed values in comparison with 80<sup>th</sup> percentile limits established independently for these CPT codes. Greater numbers of less expensive procedures and greater dispersion among higher valued procedures increases the reduction.

121. In addition to CPT codes, PHCS and MDR combine data among geozips in order to reduce the number of geozip / CPT combinations for which there are insufficient data to provide percentile limits. The same results occur when data are combined by geozip as for CPT.

---

<sup>38</sup> INGENIXMDL000451135 (Description of MDR and PHCS module characteristics).

<sup>39</sup> Gee Depo., p. 148.



**F. The geozip**

122. According to Ingenix, PHCS and MDR data are organized by three digit zip code (the geozip) and by medical procedure (the CPT code).<sup>40</sup>

123. The concept of usual, customary and reasonable relates to the same or similar procedures in the community. In essence, the UCR attempts to implement limits to billed charges because there is no market that can impose price discipline for medical care services. Markets are geographic in nature and follow consumers' purchasing preferences.

124. In effect, the percentile data using the geozip as geographic point of reference so that the built in assumption is that the geozip is the relevant community or geographic area for establishing prevailing charges and reasonableness.

125. In fact, the geozip is merely the first three digits of the zip code for the place of medical care service. The post office has established zip codes for mail delivery not with any kind of reference to community or places where consumers would be willing to go for medical care service. They bear no relationship whatsoever to medical care markets. Siskin Report, p. 10.

126. Indeed, examples can be constructed that show just how much of a problem use of the geozip is in this context.

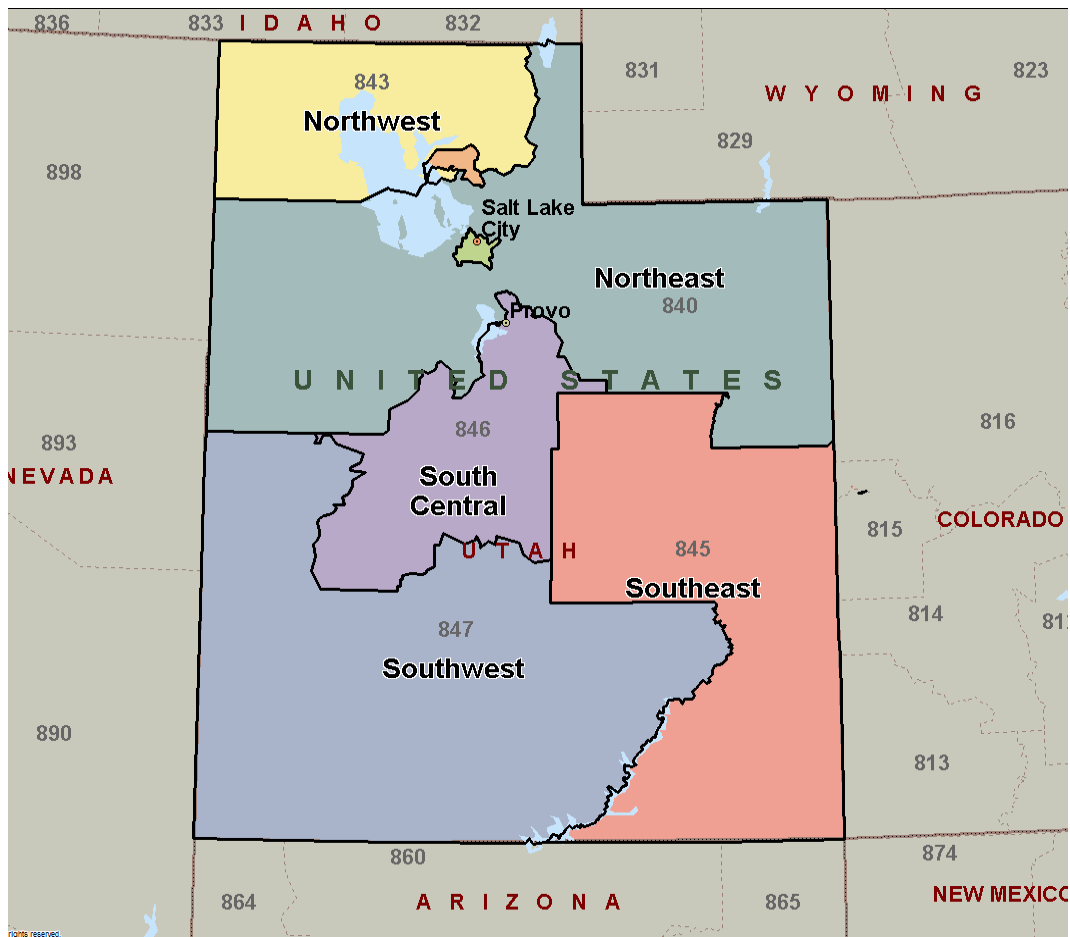
127. The map below shows the geozips for Utah: 841, 843, 844, 845, 846, 847. Use of the geozip produces the result that Vernal, Utah in the eastern part of geozip 840 is in the same community or geographic area as Wendover, Utah, also in geozip 840, even though they are five and one half hours apart by driving time.

128. By the same token, Sandy, Utah, also in geozip 840 would be considered to be part of the Vernal and Wendover "community" for purposes of developing percentiles for billed charges when Sandy is 20 minutes from Salt Lake City.

129. The geozip cannot come close to explaining why billed charge comparisons for Sandy, Utah, are more likely a function of billed charges in the Salt Lake City area than in Vernal and Wendover.

---

<sup>40</sup> Seare Aff. ¶ 26; Gee Depo. at 220; INGENIXMDL000109228 at 237 (Ingenix Benchmarking Products presentation).



#### **G. Small numbers issues**

130. HIAA started the practice of reporting billed charge percentiles for geozip/CPT combinations for which there are ten or more billed charge claims. However, this practice does not relate to any statistical method that produces confidence that the percentile value reported is accurate. To the contrary, billed charge amounts and distributions for geozip/CPT combinations where there are between 10 and 80 billed charges can produce sizeable random variation.

131. Statistical confidence in percentile values requires a power analysis to determine the number of claims needed in order to build percentile rates. Such a power analysis would incorporate the margin for error required as well as the width of the percentile range. A five percent margin for error and a ten percent percentile range (a difference of no more than five

percentiles in both directions from the 80<sup>th</sup> percentile, for example) would require approximately 80 billed charge claims records – many more than ten.

132. Moreover, there are hundreds of thousands of CPT/ Geozip combinations for which there are not even ten claims records.

133. As noted above, Aetna's agreements and disclosure state that where a service is "unusual, not often provided or provided by only a small number of providers" payment will be made based on complexity, the degree of skill, provider specialty, the range of services or the prevailing charge in other areas.<sup>41</sup>

134. However, Aetna does not do this. Instead, it uses MDR and PHCS data for which billed charge percentiles for combinations with insufficient data which develop imputed values (in the case of MDR and forty groups for PHCS) which have no relationship to usual and customary charges for the same or similar services in a community.<sup>42</sup>

#### **H. Collective application of procedures**

135. Finally, each of these processing techniques are applied by Ingenix collectively and in combination. Siskin Report, pp. 8-20. In addition to the specific problems produced by each part of the methodology, from a mathematical standpoint the number of combinations suggest that aggregating these problems are likely geometric rather than linear: The total of the problems taken together likely exceed the sum of the individual issues.

136. Much of the foregoing begs the question, "What would have happened 'but for' the production and distribution of the flawed percentile rates and their application by health insurers?

137. Regularly accepted econometric models demonstrate that a percentile rate product that did not improperly eliminate data, one that properly accounted for provider type and specialty, and one that did not impute values where imputation was not necessary, would have reimbursed consumers and providers more accurately and in greater amounts. The work by the

---

<sup>41</sup> AET-00000502 at 509-510 (Owens Corning Plan); AET-00000600 at 656-657 (Croda, Inc. Group Plan); AET-C 0000995 at 1038 (American Psychiatric Association Open Choice Plan); AET-00296986 (Reasonable and Customary Policy Overview).

<sup>42</sup> Indeed, the MDR and PHCS relative value imputations for HCPCS (supplies and goods) assume that syringes, ambulance services and wheelchairs are the same or similar services.

New York Attorney General for the 20 CPTs in the five geographic areas of New York confirms this. This can be tested and confirmed using data produced by Defendant on a nationwide (i.e., class-wide) basis. My preliminary review of the data and analysis confirms as much.

**IX. Common questions of fact – damages based on future payment reduction**

138. The relief requested in the consolidated class action complaint includes injunctive relief that requires Aetna to refrain from using the flawed percentile database products in the future as well as other flawed techniques to establish usual, customary and reasonable medical care cost limits, along with other nonparticipating provider benefit reductions.<sup>43</sup>

139. As described below, it is possible to calculate accurate percentile profiles for payment of out-of-network provider claims. Calculation of accurate percentiles will provide the basis to require Aetna to provide accurate reimbursement as specified in its contracts.

140. To the extent that Aetna continues to limit reimbursement to levels below those contractually required, whether by using flawed percentiles contained in the MDR and PHCS data base products or some other process, all policy holders and their families and all providers will be impacted. This impact operates in the same manner for all of them: denial of contractually specified reimbursement for out-of-network medical care.

141. Reduction of reimbursement below contractually specified levels in the future reduces the value of the health insurance policy benefit (reimbursement against future risk) in the same manner for all policy holders and their families and for the providers who will receive reimbursement for treating them.

142. Health insurance policies involve reimbursement of risks: reimbursement for out-of-network medical care costs. To the extent that consumers and providers are led to believe that future reimbursement will be based on an accurate usual, customary and reasonable percentile when they will, in fact, be reimbursed at a lower level produces the same type of present injury and damage for all policy holders and providers.

---

<sup>43</sup> Aetna SAC ¶ 199.

**X. Common questions of fact – injury and damages based on past payment reductions**

143. The consolidated class action complaint alleges that Aetna has in the past limited reimbursement for out-of-network medical care costs using flawed percentile data as well as flawed internally developed limits such as payment based on a percentage of Medicare RBRVS levels.<sup>44</sup> Plaintiffs allege that the anticompetitive conduct and other wrongdoing alleged in the consolidated class action complaint deprived the class of the benefit of UCR determinations free of the alleged restraints and improperly distorted the UCR determinations based directly or indirectly on the Ingenix database. As a result of the alleged anticompetitive conduct, it is impossible to determine with absolute certainty the UCR determinations that would have been made “but for” the alleged collusive conduct in a market free of the alleged anticompetitive conduct. Consequently, as is invariably the case actions like this one alleging antitrust and similar claims, any determination of the proper allowed UCR amounts necessarily represents a reasonable estimate.

144. In my opinion, I can establish impact and calculate damages on a class wide basis with a reasonable degree of certainty.

145. The first method to calculate class wide damages is to establish the difference between the billed charge and the allowed amount calculated using the flawed data base.

146. The following methodology may also be used for the purpose of estimating damages with respect to claims asserted by the plaintiffs.

147. Damages to the subscriber and provider classes can be calculated based on the development of accurate and known billed charge percentile data and use of accurate billed charge percentile basis to calculate what Aetna would have reimbursed “but for” the application of flawed reimbursement limits. This approach permits calculation of damages in an efficient way since the calculation is the same for all class members, and will produce accurate damage calculation with a reasonable degree of certainty.

---

<sup>44</sup> Aetna SAC ¶¶ 401, 404.

148. The basis for damage calculation is to develop accurate billed charge percentiles and apply them to produce the usual, customary and reasonable limits that Aetna would have used “but for” the flawed percentiles that were actually used.<sup>45</sup> There are four basic approaches that can be used to develop accurate billed charge percentiles.

149. First, it is possible to develop accurate billed charge percentiles using Aetna’s billed charge data provided during discovery. Aetna’s enrollees generate millions of medical care procedures including provider visits on an annual basis. There is no reason to believe that provider charges for Aetna patients differ systematically from the charges the same providers apply to medical care rendered to patients of other health insurers.<sup>46</sup>

150. Second, to the extent that there are concerns about representativeness and to the extent that more data will improve accuracy and provide greater information (particularly for “small number” CPT/ geographic combinations<sup>47</sup> discussed below) additional data from other related legal actions (such as CIGNA and Wellpoint) can be added to the Aetna data to provide an adequately fulsome data pool.

151. Third, Medicare billed charge claims data is available and can be obtained and used to supplement the data from Aetna and the other health insurers in order to further improve representativeness, accuracy and information.<sup>48</sup> Similarly, Medicaid claims data is available for some states. This data could be added to the private health insurer carrier data for this purpose.

152. Fourth, if the greatest possible confidence in the data is desired all billed claims data could be obtained through subpoena (or voluntary contribution).

---

<sup>45</sup> This approach assumes that the Aetna UCR approach met the standards of its contracts and disclosures.

<sup>46</sup> To the extent that the provider billed charges over represent providers who are “in network” Aetna providers there may be a question whether their billed charges might be higher if they are generally of higher quality or lower if they are generally of lower quality, but there is no reason to believe that Aetna’s providers are not representative of providers in general. Tests for representativeness can – and should – and appropriate adjustments made as needed.

<sup>47</sup> For each procedure/ geographic area for which billed charge percentiles are developed the damage calculation can provide a known statistical confidence level so that only billed charge percentiles that are reasonably reliable (defined statistically) are used.

<sup>48</sup> Once again, there is no reason to believe that Medicare billed charges or Medicaid billed charges differ systematically from the billed charges made to private commercial health insurers or, for that matter, among private commercial health insurers. However, it would be tractable to test this and to provide adjustments for any systematic bias that might be found.

153. Each of the foregoing percentile data approaches will permit calculation of damages with reasonable certainty. With this data it will be possible for an econometrician or statistician to produce accurate percentile rate tables by geozip and CPT for which sufficient data (statistically established using a power analysis) exists.

154. Regardless of which of the four data collection approaches is used, data will be collected and cleaned without the high-low screen, without the imputed value issues and without other data issues inherent in the flawed PHCS and MDR data.

155. After compilation and cleaning of the data, billed charge percentile tables will be constructed by medical procedure using CPT codes and by geographic area. For purposes of damage calculation the geozip can be used consistent with the Aetna geozip based UCR payment limitations. Alternatively, the data may permit identification of more appropriate geographic areas as representative of communities.

156. After identification of accurate percentiles by CPT/geographic combination the accurate percentiles can be loaded into Aetna's claims processing software in order to compute amounts that would have been "allowed" by Aetna "but for" use of the flawed billed charge percentile data and to compute amounts that would have been paid had accurate billed charge percentile data been used.

157. Amounts actually paid can be subtracted from amounts that should have been paid to produce the amount of damage for each claim.

158. While the result of the computation can and will differ for each claim the algorithm for calculating damages will be exactly the same for each class member.<sup>49</sup> While the mathematical result may differ, the qualitative way that damages are measured will be the same for each class member.

159. The damage computation should carefully determine how many billed charges will be needed to establish damages with reasonable certainty and to use the damage calculation algorithm for them.

---

<sup>49</sup> Making it optimally efficient.

160. There will be CPT/geozip combinations for which there are not sufficient billed charges to apply the damage calculation algorithm. Ingenix materials and experience with the data suggest that collectively these “small numbers” combinations will represent less than five to ten percent of total billed charges such that even without a method to assess damages for the small numbers combinations damages can be calculated with reasonable certainty.

161. Where there are not enough billed charges for a medical procedure in an area (a CPT/geozip combination) to establish contractual percentiles, there is (by Aetna’s plan language) in fact, no usual, customary and reasonable charge for the same or similar services in the community. In those cases the plan language should govern computation of damages.

162. However, Aetna has chosen to impute payment for small numbers CPT/geozip combinations. Accordingly, reasonable damage computation would provide for more accurate imputation using the more accurate billed charge percentiles.

163. A reasonably accurate damage estimate would accepted statistical and econometric modeling procedures to calculate damages based on actual billed charges less amounts allowed by defendant where there is not enough data to develop percentiles or by imputing a proxy for UCR using data known to be accurate for medical procedures in geographic areas known to be sufficient.

164. In short, such a damage calculation does not merely infer class wide impact or injury merely from the allegation of conspiracy. Rather, present and past damages will be calculated in fact, using the very methodology and approach adopted by defendant – using defendant’s own data - to substitute accurate billed charge percentile data, thereby requiring defendant to reimburse plaintiffs in the amounts that it would have reimbursed each of them but for use of inaccurate billed charge percentile data. It was exactly this – fair and appropriate reimbursement for out-of-network services - that the New York Attorney General envisioned in issuing the Code Blue report, in the settlements that followed and by establishment of FAIR Health.



## **XI. Conclusions**

165. Health insurers (including Aetna) have in the past limited patient reimbursement for out-of-network payment using usual, customary and reasonable standards applied with data generated percentile tables by geographic area and medical procedure known as geozip/CPT combinations.

166. Past payment limitations have employed percentile data that has known problems, which have impacted the classes in a common way.

167. To the extent that future billed charge limitations continue to use percentile data with known problems all policy holders and providers suffer the same damage: the systemic reduction of reimbursement that will be available in the future and the reduction of the present value of their health insurance policy commensurate with the future reduction of payments.

168. For the years in question in this action, it is possible to construct accurate percentile levels by geographic area and by medical care procedures using Aetna data, supplementing Aetna data with CIGNA and Wellpoint data, supplementing Aetna data with Medicare and Medicaid data or obtaining all health insurance claims data by subpoena or otherwise.

169. Damages can be calculated with reasonable certainty by developing accurate percentiles for imposition of limits, by using percentiles to calculate what Aetna would have allowed and paid “but for” use of the flawed billed charge percentiles and by comparing actual reimbursement made by Aetna for medical care procedures with what should have been paid. This damage calculation will be the same for all class members. While the results of the calculation may differ quantitatively, there will be no qualitative difference in assessing damages for all class members.

**XII. Testimony and compensation**

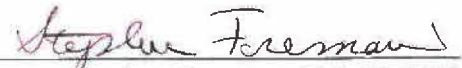
170. I have not testified in federal or state court during the past four years.

- a. In 2008 I provided testimony at hearings held by the Pennsylvania Insurance Department relating to the markets for health insurance and the proposed merger of Highmark and Independence Blue Cross.
- b. In 2007 and in 2006 I testified on physician payment before the State of New Jersey House of Representatives.
- c. In 2007 I provided testimony for a health care reform panel organized by US Congressman Joseph Sestak.
- d. In 2004 I testified before the Antitrust Subcommittee of the United States Senate Judiciary Committee on matters relating to health insurance markets.
- e. In 2003 and 2004 I served as the American Medical Association's testifying expert at hearings held by the US Department of Justice and the Federal Trade Commission relating to competition in health insurance markets.
- f. In 2002 I testified on the issue of physician payment before the Pennsylvania House of Representatives.

171. For my services in this matter, I am being compensated at the rate of \$350 per hour.

My compensation is not related to the outcome of the case.

This Expert Report relating to class action damages in re Aetna UCR Litigation, MDL 2020, Master Case No. 07-3541 (FSH)(PS) is submitted this 6<sup>th</sup> day of April, 2010.

A handwritten signature in cursive script, reading "Stephen Foreman", written in dark ink. The signature is positioned above a horizontal line.

Stephen Foreman, PhD, JD, MPA

### Works Cited

Aetna. (2010, April 2). *How Aetna pays for out-of-network behavioral health benefits*. Retrieved April 2, 2010, from [http://www.aetna.com/individuals-families-health-insurance/member-guidelines/outofnet\\_behealth.html](http://www.aetna.com/individuals-families-health-insurance/member-guidelines/outofnet_behealth.html)

Committee on Commerce, Science and Transportation, Office of Oversight and Investigations. (2009). *Underpayments to Consumers by the Health Insurance Industry*. Washington, DC: U.S. Government Printing Office.

Gravetter, F., & Wallnau, L. (2008). *Statistics for the Behavioral Sciences, 8th Ed.* Florence, KY: Wadsworth Publishing.

Oliver, T. (1993). Analysis, Advice, and Congressional. *Journal @Health Politics, Policy and Law* , 18 (1), 114-174.

Raffel, M., Raffel, N., & Barsukiewicz, C. (2002). *The U.S. Health System: Origins and Functions*. Albany, NY: Delmar.

Sandy, L., Bodenheimer, T., Pawlson, L., & Starfield, B. (2009). The Political Economy of US Primary Care. *Health Policy, Politics and Law* , 1136-1144.

Senterfitt, B. (2007, June). Courts Split on Assignment of Benefit Laws. *Managed Healthcare Executive* .

Tukey, J. (1977). *Exploratory Data Analysis*. Reading, MA: Addison-Wesley.

EXHIBIT A

**Stephen Foreman, Ph.D., J.D., M.P.A.**

156 Quarry Lane  
Franklin, PA 16323  
[foreman@rmu.edu](mailto:foreman@rmu.edu)  
814-437-7914

***Academic qualifications***

1994	Ph.D.	Univ. of California, Berkeley	Berkeley, CA
1988	M.P.A.	Harvard University	Cambridge, MA
1975	J.D. Honors	University of North Carolina	Chapel Hill, NC
1972	A.B. High Honors	North Carolina State University	Raleigh, NC

***September 2004 to present***     **Robert Morris University, Pittsburgh, PA**  
Associate Vice President for Academic Affairs (2006-2008)  
Department Head, Allied Health (2004-2006)  
Associate Dean Research (2005-2007)  
Associate Professor of Economics and Health Policy  
Crimea State Medical University, Simferopol, Crimea, Ukraine (2008-present)  
Professor, Social Medicine and Health Economics  
Syracuse University, Syracuse, NY (2010-present)  
Senior Research Scientist

**Honors and awards**

- 2008-2009 US State Department Fulbright Scholar: lectures in health policy, Crimea State Medical University
- Diplom, Honorary Professor, Crimea State Medical University, 2009
- Pennsylvania Chapter, American College of Emergency Physicians, Service to Emergency Medicine, 2006
- Robert Morris University Student Government, Distinguished Faculty Teaching Award, 2007
- Robert Morris University Student Government, Service to Students Award, 2006

**Administrative responsibility:**

- Curriculum and curriculum development: worked with graduate curriculum committee, undergraduate curriculum committee and Deans' council.
- New program development, planning, budgeting, Pennsylvania Department of Education application and review.
- Pennsylvania Department of Education program approval compliance.
- Externally funded research including research design, grant applications, budgeting and grant administration.

Stephen Foreman

- Institutional Review Board.
- Accreditation organizations.
- Participant, University President's Cabinet and Deans' Council.
- Academic risk dashboard responsibility for institutional risk management.
- Significant accomplishments
  - Collaboration with faculty members to expand funded research programs.
  - Pioneering STEM program grant awarded by National Science Foundation to School of Engineering, Mathematics and Science.
  - External funding program for research and academic activity expanded significantly in 2007 and 2008.
  - Development, coordination within the university, submission, and Pennsylvania Department of Education approval for a School of Osteopathic Medicine and programs in Doctor of Nursing Practice, Bachelor of Science in Healthcare Administration, Bachelor of Science in Nuclear Medicine and Bachelor of Science in Biology.
  - Worked with Pennsylvania Department of Education representatives to restructure the industrial engineering program.
  - Helped prepare the academic portions of the University's 2007-2012 Strategic Plan.
  - Prepared and obtained graduate curriculum committee approval of academic standards and support for online courses and degrees.
  - Worked with deans and finance representatives to revise the University's research grant application guidelines.
  - Developed demand studies for new programs in medicine, nursing and allied health.
  - Prepared economic impact analysis for College of Osteopathic Medicine and Doctor of Nursing Practice programs.
  - Developed a structure for a College of Health Sciences.

**Teaching:**

- Faculty appointments: School of Business and School of Nursing and Health Science.
- Lecturer, social medicine and public health, medical law, Crimea State Medical University, Simferopol, Crimea, Ukraine
- Courses taught: health economics, health policy, health law and ethics, health care finance, principles of macroeconomics, principles of microeconomics, intermediate macroeconomics, statistics and quantitative methods.
- Development and implementation of course level outcome assessment using nationally normed economic simulation.
- Consistently excellent teaching evaluations.

**Research and scholarly areas of interest (peer reviewed publications attached):**

- International aging, international business competition and incentives to care for the elderly.
- Comparative international health care management.
- Comparative international health systems.
- Optimal government and private funding for health care.

Stephen Foreman

- Determinants of corruption.
- Physician, hospital and health insurance markets: market structure and performance, physician manpower, workload and patient safety.
- Trilateral monopoly and countervailing power in the market for health insurance.
- The economic impact of Medicaid spending and health outcomes.
- Patient safety. Use of Poisson regression to predicting hospital based infections, falls, adverse drug reactions and surgical errors.
- Referee for scholarly journals and publishers including International Academy of Business and Economics, Journal of Health Policy, Politics and Law and Oxford University Press.

**Service:**

- Robert Morris University Strategic Planning Council.
- Chapter Advisor, Robert Morris Phi Delta Theta fraternity.
- Advisor, Pennsylvania Chapter, American College of Physicians.
- Pennsylvania Task Force on Health Care Reform, appointed by Governor Edward Rendell.
- State of New York, Office of the Attorney General, health insurer data issues.
- American Civil Liberties Union. Report on the economic impact of a civil union constitutional amendment.
- Heritage Valley Health System Patient Safety Committee.
- Review committee chair / program reviewer for the Pennsylvania Department of Education. Reviews of academic programs at Immaculata University and application for University status by Misericordia College.
- National Consortium of Regional Healthcare Initiatives.
- Professional addresses, testimony and reviews including:
  - Ohio Valley Hospital Strategic Planning Retreat, October 2009.
  - Special lecture series on health policy for the faculty of Crimea State Medical University. November 2008.
  - Pennsylvania Insurance Department hearings on proposed merger of Highmark and Independence Blue Cross. July 2008.
  - Pennsylvania Association of Medical Suppliers, "The Impact of Competitive Bidding for DME." August 2008.
  - Mercer County Medical Society, "International Health Care Systems." April 2008.
  - Mercer County Hospital, "International Health Care Systems." July 2008.
  - Grove City Hospital Annual Planning Retreat, "The State of Medicine in Pennsylvania." May 2008.
  - Monroeville Chamber of Commerce, "The US Macroeconomy." March 2008.
  - Hospital Council of Western Pennsylvania, "The State of Medicine in Pennsylvania" (November 2007).
  - Beaver County Medical Society, "Overview of National Patient Safety Programs" (October 2007).
  - Pennsylvania Healthcare Association, "The Future of Long Term Care" (August 2007).

Stephen Foreman

- Grand Rounds for
  - Pinnacle Health System (December 2004 and January 2007)(health professions manpower) and
  - Western Pennsylvania Hospital (June 06)(medical errors as a nonlinear event)
- Keynote speaker, Cong. Joseph Sestak, Health Care Forum – “Health Professions Manpower” (June 2007)
- New Jersey legislature (physician payment in New Jersey) (January 2007) and the New Jersey Insurance Department (May 2007)
- Speaker on patient safety for Jewish Healthcare Foundation of Pittsburgh’s Patient Safety Fellows program (June 2007) (The “conspiracy of silence”)
- Invited participant, PaACEP Town Hall Meeting: Emergency Medicine in Pennsylvania (May 2007)
- PaACEP Scientific Conference, “Emergency department staffing in Pennsylvania” (Nov 2007)
- Keynote speaker for the Pennsylvania Primary Care Forum (May 2007)
- Keynote speaker, Annual Planning Meeting, PCIM, “Nurse practitioners and money” (June 2007)
- Keynote speaker for the Hawaii Medical Association annual meeting (Oct 2006)(payment for performance)
- World Vista annual meeting: the Economics of World Vista” (April 2007)
- Washington State Medical Association annual meeting, “Payment for Performance” (June 2006)
- Southwestern Pennsylvania Academy of Surgeons, the ‘State of Medicine in Pennsylvania” (Sept 2006)
- Pennsylvania Medical Group Management Association, the ‘State of Medicine in Pennsylvania” (June 2006)
- Delaware Valley Medical Society, the ‘State of Medicine in Pennsylvania” (June 2006)
- Beaver County Medical Society, “Odds, risks and nonlinearity in Patient Safety” (Oct 2006)

***Selected consulting and advising:***

- Special consultant to the contract monitor for the FAIR Health project, New York Attorney General.
- 2009-present: Delaware Valley Health Care Coalition, negotiating committee member for health care services for 200 labor unions.
- 2009-present: Delaware Valley Health Care Coalition, quality hospital project – identification of hospital quality and efficiency.
- 2009-present: Ajamie, LLP. Physician payment litigation.
- 2009- present: Zumpano, Patricios and Winker, Coral Gables, FL: physician payment litigation.
- 2009 –present: Post and Post, insurance antitrust litigation.
- 2007-present: Ohio Valley Hospital, Pittsburgh, PA: strategic planning consultant.



Stephen Foreman

- 2008-2009: Attorney General, State of New York, matters relating to physician payment and health insurance data.
- 2008-present: Medical Society of New Jersey: conversion of Horizon Blue Cross to for profit status.
- 2008-present: Leech, Tishman, Pittsburgh, PA. Hospital and physician markets in Southwest Pennsylvania.
- 2007-2008: Dominion, Economic impact of energy distribution.
- 2006-present: New Jersey Medical Society, economic and legal implications of proposed physician fee schedules.
- 2006-2007: Pennsylvania College of Internal Medicine, Pennsylvania Association of Primary Care Physicians and Pennsylvania Academy of Pediatrics. The market for primary care in Pennsylvania.
- 2006-2007: Pennsylvania College of Internal Medicine, the economic impact of a primary care physician loan forgiveness program on the Pennsylvania economy.
- 2006-2007: Pennsylvania Medical Society, structure and conduct in the markets for health insurance, hospital services and physician services in Pennsylvania.
- 2005-2007: Walters, Bender et al, Kansas City, MO. Simulation of damages related to physician payment system.
- 2006-2007: American College of Obstetricians and Gynecologists, obstetrician access in the US.
- 2005-2006: DeForest, Kocelnik, Pittsburgh, PA. Damage modeling involving intentional interference with contractual relations in long term care settings.
- 2005-2006: Throckmorton, Tropin, Coral Gables, FL. Economic model of profits, administrative costs and CEO salaries in health insurance firms.
- 2004-2007: Pennsylvania Medical Society, professional manpower issues, medical liability and health insurance markets.
- 2004-2006: Whatley, Drake, et al, Birmingham, AL. Multidistrict Class Action Litigation, health insurance market structure and conduct.
- 2003: Mattis, Baum, Rizza, O'Connor, Pittsburgh, PA. Economic impact of malpractice liability on the market for obstetrical services in southwestern Pennsylvania.
- 2003: Pennsylvania Medical Society, economic impact studies of liability awards on the market for physician services.
- 2001-2007: American Medical Association, structure and performance in the market for physician services.
- 2002: Jones, Day, structure and concentration in Central Pennsylvania insurance markets.

**2001-2004**                      **Vice President, Research, and Director, Pennsylvania Medical Society  
Health Services Research Institute, Harrisburg, PA**

**Primary Duties:** Policy research relating to the medical care and health insurance industries.

- Areas of emphasis: markets for physician services, health insurance and liability insurance markets, medical manpower, access to care and patient safety, Medicare and

Stephen Foreman

Medicaid funding, the economic impact of liability reform and transportation economics.

**Reports regarding organization and operation of physician markets.**

- Competition in Health Insurance: A Comprehensive Study of U.S. Markets, AMA (2002).
- The Economic Impact of the Campbell Bill, AMA (1999).
- Health Insurance and Medical Care Markets in Southeast Pennsylvania, Pennsylvania Medical Society (2002).
- Health Insurance and Medical Care Markets in Western Pennsylvania, Pennsylvania Medical Society (2003).
- Premium Deceit, A Critique of a Center for Justice and Democracy Study, Pennsylvania Medical Society (2003).
- Some Selected Comments About Public Citizen 'Medical Misdiagnosis' Reports and Retorts Using National Practitioner Data Bank information, Pennsylvania Medical Society (2003).
- The Economic Impact of Tort Reform in Pennsylvania (1998), Pennsylvania State University Working Paper (1998).

**Managed the Medical Society's research budget.**

**Testified before and drafted reports for legislative and regulatory bodies at the state and national level.**

- Testimony and Report on behalf of the Pennsylvania Medical Society for 2004 Antitrust Hearings before the US Senate Judiciary Committee, Subcommittee on Competition,
- Testimony and Report on behalf of the American Medical Association for 2003 Federal Trade Commission and Department of Justice Hearings on Health Care Competition Law and Policy,
- Testimony and Report on the economic impact of a proposed class action settlement involving Pennsylvania physicians in the Philadelphia Court of Common Pleas,
- Testimony and Report regarding the Economic Effect of Caps on Liability Awards on behalf of the Pennsylvania Medical Society before the Pennsylvania Legislature,
- Testimony on behalf of the Pennsylvania Medical Society at 2002 FTC and Justice Department Hearings on Health Care Competition,
- Testimony regarding the economic impact of "State Action" antitrust legislation before the Pennsylvania legislature,
- Testimony and Report regarding the Economic Impact of Tort Reform before the Pennsylvania legislature on behalf of the Pennsylvania Civil Justice Coalition,
- Testimony regarding perinatal care hospital regulation before the Ohio legislature on behalf of Grandview Hospital, Dayton, Ohio,
- Testimony and Report before the Pennsylvania Attorney General and the Pennsylvania Department of Insurance regarding the proposed merger of Blue Cross of Western Pennsylvania and Pennsylvania Blue Shield on behalf of the Pennsylvania Medical Society,

Stephen Foreman

- Testimony and Report for the Pennsylvania Department of Insurance regarding market concentration in Southeast Pennsylvania,
- Presentation of a report to the U.S. Centers for Medicare and Medicaid Services
- Report regarding the impact of physician fee increases on access to Medicaid services in California in preparation for litigation in the California District Court regarding the adequacy of Medicaid payment.
- Report regarding damages for the Arizona Attorney General in a matter regarding alleged collusion among Phoenix nursing home operators.

Frequent speaker before professional and community organizations.

Guest lecturer for academic institutions including the University of Pennsylvania and the Pennsylvania State University School of Medicine.

Developed research institute consulting clients that included the American Medical Association, major antitrust law firms, major class action law firms, state medical societies and various professional organizations.

**1994-2001                      Assistant Professor,                      Pennsylvania State University  
State College, PA**

**Honors and awards:**

- Mortarboard Society Award -- outstanding University professor of 1996.
- 1996 Article named to International Management Association's "Hall of Fame"
- 1992 Edgar Hayhow Award winner for "The Power of Value-Adding Partnerships" from the American College of Healthcare Executives.

**Teaching:**

- Courses taught: Doctoral candidates, master's students and undergraduate courses in health economics, health care finance, statistics, research methods, quantitative analysis, time series methods and health law and ethics.
- Supervised doctoral and master's thesis preparation and undergraduate honors students.
  - Chair for three Ph.D. candidates
  - Committee member for 12 Ph.D. candidates
  - Thesis Advisor for 10 Master's students
  - Thesis advisor for five undergraduate honors students.
- Significant accomplishments
  - Consistently received the highest teaching evaluations in the Department, the College and the University.

**Service:**

- University Insurance and Benefits committee.
  - Monitoring and managing a \$64 million benefits program and development of a strategic benefits plan
- College Scholarship Committee.
  - The award of scholarships to undergraduates and graduate students.
- Department Ph.D. committee.

Stephen Foreman

- Frequent speaker before governmental bodies and professional associations.

**Research and scholarly activity:**

- Refereed scholarly publications.
- Principal investigator for funded research projects including economic impact analysis of state legislative efforts, demand for health services and quantitative research design.
- Referee for a number of scholarly journals
- Recognition for outstanding scholarly work:

**1989-1994 PhD. Program, Teaching Associate, Lecturer and Senior Research Associate, The University of California, Berkeley**

Koford Memorial Fellow.

Agency for Health Care Quality and Research Fellow.

Dissertation research on incentive payment systems in health care. Dissertation completed in June 1994.

Teaching assistant: econometrics and organizational theory.

Course work in a variety of disciplines including economics, health economics, game theory, quantitative methods including ARIMA time series analysis, organizational theory (micro and macro) and finance.

Supervised research relating to time series analysis, incentive payment systems, managed care and others.

Managed research and training grants for The Robert Wood Johnson Foundation, the Agency for Health Care Quality and Research and the National Institute for Aging.

Contract research projects included projects for the Blue Cross and Blue Shield Association, Arizona Nursing Home Association and the Institute of Medicine.

Published work in scholarly journals.

Performed economic analyses for antitrust cases - Arizona nursing homes (damages), Medicaid dental payment in California (access to care and dentist payment elasticity of supply) and Blue Cross payment (time series analysis).

**1987-1988 Master's Program, Harvard University**

Completed in course work in a number of fields including negotiation, labor management, economics and game theory.

Master of Public Administration degree received, June 1988

Lucius Littauer Fellow –honors for outstanding academic performance and leadership

**1985-1987 President & CEO, St. Benedict's Health System, Ogden, Utah**

Responsible for all phases of operations of a multi-institutional health system located in the Intermountain west with 800 employees. Facilities included owned and managed hospitals, alcohol and chemical treatment facilities, ambulatory surgical facilities, free standing psychiatric centers and other behavioral health facilities.

Successfully managed turn-around of financially insolvent organization including work with local banking institutions (to deal with defaults on a short term working capital line of

Stephen Foreman

credit) and with representatives for bondholders (defaults on a long term revenue bond financing).

Downsizing staffing issues.

Developed marketing strategies to stabilize operations.

**1980-87 Partner, Memel, Jacobs, Pierno Gersh & Ellsworth, Los Angeles, California**

Private practice of corporate financial law including tax exempt revenue bond issues, corporate restructurings and certificate of need determinations.

**1975-1980 Associate, Hahn, Loeser, Freedheim, Dean & Wellman, Cleveland, Ohio**

Private practice of corporate financial law including certificate of need determinations, tax-exempt revenue bond issues, corporate restructurings and certificate of need determinations.

**1972-1975 University of North Carolina School of Law**

Coursework in law

North Carolina Law Review

Order of the Coif national honors society

Breckinridge Tax Prize (1975)

American Jurisprudence Awards (Torts, Civil Procedure, Administrative Law, Remedies)

Founding member, Parker International Law Society

**1970-1972 Operations Sergeant, HQ Commandant, HQ XVIII Airborne Corps and Fort Bragg**

Troop movement coordination

Coordination of parachute training for HQ company

Developed operations plans

Stephen Foreman

## Scholarship

- Foreman, S. (2010). A Different Corruption Paradigm, *Review of Business Research* (forthcoming June 2010).
- Foreman, S., Kubyshkin, A., Ludan, V., Sukhareva, I. (2009) Trading Ideas: Health Care Management in the US and Ukraine. *Journal of Applied Business and Economics*, 10(1): 25.
- Foreman, S., (2009). Health Care Reform in Crimea, *Crimea Izvestia (Verkovna Rada)*, 86(4289): 4-5 (May 16).
- Foreman, S., Kubyshkin, (2009). A. Optimal Governmental and Private Roles in Health Care Financing. *International Journal of Strategic Management*, 9(1):75-82.
- Foreman, S., Sukhareva, I. and Kubyshkin, (2008). A., A Comparison of Selection and Education of Healthcare Managers in Ukraine and the US. *Crimea Medical Journal* (Dec).
- Foreman, S. and O'Roark, B. (2009). Home and Community Based Services: Lemonade or Hemlock. Currently under review Pennsylvania Economics Association Journal.
- Foreman, S, Litzinger, P, O'Roark, B., & Flanegin, F. (2009). Aging: Another Contribution to the Theory and Empirics of Economic Growth. *International Journal of Business Research*, 8(1):
- Foreman, S, Litzinger, P, O'Roark, B., & Flanegin, F. (2008). International Financial Implications of Aging, *International Journal of Finance and Economics. European Journal of Management*.
- Foreman, S, Litzinger, P, O'Roark, B., & Flanegin, F. (2008). Financial Policy for an Aging World. *Proceedings, International Academy of Business and Economics*, Stockholm.
- Foreman, S, Litzinger, P, O'Roark, B., & Flanegin, F. (2008). The Cost of Aging, International Competitive Advantage (Disadvantage). *American Society of Business and Social Sciences* 15(1): 430-443.
- Foreman, S. (2008). *The State of Medicine*. Harrisburg, PA: Pennsylvania Medical Society.
- Holstein, A. & Foreman, S. (2007). Cross-state outcomes and Medicaid generosity. *Pennsylvania Economics Association Journal* (2007).
- Holstein, A. & Foreman, S. (2006). Medicaid spending and health outcomes. *Proceedings: Pennsylvania Economics Association*.
- Foreman, S. (2006). *The State of Medicine*. Harrisburg, PA: Pennsylvania Medical Society.
- Maioulis, G, & Foreman, S. (2004). The myth of the "bad doctors" Toward A New Theory of Risk of Failure in Medical Care. *Frontiers in Service Delivery*.
- Foreman, SE, Emmons, D, Wasniak, G. (2001). Economic Consequences of Collective Bargaining by Physicians, *JAMA* 286: 1837-39.
- Banks DA, Foreman SE, Keeler TE. (1999). Cross-subsidization in hospital care: some lessons from the law and economics of regulation. *Health Matrix* 9(1):1-35
- Foreman, S.E., Shea, D.G., (1998). Information and Markets: On-Time Performance Reports, *Review of Industrial Organization*.
- Sonnad, S.S. & Foreman, S.E. (1997). A physician incentive approach to implementation of medical practice guidelines. *Health Economics* 6, 467-77.
- Foreman SE, Yu LC, Barley D, Chen LW. (1998) Use of health services by Chinese elderly in Beijing. *Medical Care* 36(8):1265-82.
- Foreman, S.E. & Keeler, T.E. (1998). Regulation and deregulation. *The New Palgrave Dictionary of Economics and the Law*.
- Zhang, A., Yu, L.C., Yuan, J., Tong, Z, Yang, C. & Foreman, S.E. (1997). Family and cultural correlates of depression among Chinese elderly. *International Journal of Social Psychology* 34(3), 199-212.
- Foreman, S.E., Shea, D.G., & Kenkel, D. (1996). Information and the cost and quality of bypass surgery. *Journal of Cost and Quality*, 2, 23-29.
- Foreman, S.E., Scheffler, R.M., Hu, T.W. & Feldstein, P.J. (1996). A multi-equation model of payments and public access to services: The case of dentistry. *Applied Economics* 28, 1359-68. (International Management Association Hall of Fame.)
- Foreman, S.E., Wilson, J.A., & Scheffler, R.M. (1996). Monopoly, monopsony and contestability in health insurance: A Study of Blue Cross Plans, *Economic Inquiry* 34(4), 662-77.
- Foreman, S.E. & Keeler, T.E. (1995). The economics of hospital cross subsidization. *University of California, Berkeley NBER Working Paper* 95/236.

Stephen Foreman

Foreman, S.E., Shea, D.G., & Kenkel, D. (1995). Cost and quality information and health care market reform. *Advances in Health Economics and Health Services Research*, 15, 137-53.

Foreman, S.E. (1993). Box-Jenkins ARIMA analysis of airline safety data. *The Logistics and Transportation Review*, 29, 221-240.

Scheffler, R.M., Foreman, S.E., Cuffel, B. & Mackley, C. (1993). A Model Mental Health Benefit, Review and Critique. Accepted for publication by *Health Affairs* but not published.

Foreman SE, Roberts RD. (1991). The power of health care value-adding partnerships: meeting competition through cooperation. *Hosp Health Services Adm. Summer* 36(2):175-90. (1992 Edgar Hayhow Award). Reprinted in S. Levey (Ed.), *Hospital Leadership and Accountability*. Ann Arbor, MI.: Health Administration Press.

Scheffler, R.M., Foreman, S.E., Cuffel, B.J., & Mackley, C. (1994). Mental health benefits in the Clinton Plan. *Health Affairs II*, 201-210.

**Exhibit B**  
**Materials Reviewed**

In re: Aetna UCR Litigation, Second Joint Consolidated Amended Class Action Complaint;  
Ingenix, Ingenix Benchmarking Products (2005) (Ingenix Slides);  
Aetna materials including emails, AET-01059356 et seq.  
Aetna Behavioral Health Internet Site: [http://www.aetna.com/individuals-families-health-insurance/member-guidelines/outofnet\\_behealth.html](http://www.aetna.com/individuals-families-health-insurance/member-guidelines/outofnet_behealth.html) (accessed April 2, 2010).  
Aetna, Owings Plan AET-00000502.  
Aetna, Croda Plan AET-00000600.  
Aetna, Rosenberg Plan AET-0000001.  
Aetna, American Psychiatric Association Open Choice Plan AET-C 0000995, at 1038.;  
Health Care Report: The Consumer Reimbursement System is Code Blue, Office of the Attorney General, State of New York, Jan. 2009 ("Attorney General Report");  
Committee on Commerce, Science and TransportationTransportation, Office of Oversight and Investigations, Underpayments to Consumers by the Health Insurance Industry, Staff Report for Chairman Rockefeller, June 24, 2009 ("Rockefeller Report").  
Expert Report in the Matters of Wachtel v. Health Net and McCoy v. Health Net, by Bernard R. Siskin, PhD, March 2004 ("Siskin Report");  
Affidavit of Susan Seare dated March 14, 2008("Seare Aff.");  
Deposition of Carla Gee dated March 17, 2010 ("Gee Depo.");  
Deposition of James Cross (rough) dated March, 23, 2010 ("Cross Depo.");  
Deposition of Deborah Justo (rough) dated March 25, 2010 ("Justo Depo.");  
ACAS Claim Data Production 2001-2009 including AET 00500964, AET 00500965, AET 00500966, AET 00500967 and AET 00297211 .  
State of New York, Office of the Attorney General, In the matter of Aetna, Inc., Assurance of Discontinuance Under Executive Law §63(15)(2009).  
AET-00296986 (Reasonable and Customary Policy Overview).);  
INGENIXMDL000109228 (Ingenix Benchmarking Products presentation);



INGENIXMDL000451135 (Description of MDR and PHCS module characteristics);  
INGENIXMDL000189345 at 384-86 (Gee deposition in First Care Chiropractic Center, Inc. v. Progressive Ins. Co., Case no. SCO-03-9095);  
AET-01163366 (MP&NT Policy and Support);  
INGENIXMDL000456618 (All Hands Meeting Presentation);  
INGENIXMDL000541071 (Competitive Analysis – Captiva);  
AET-00913905 (White Paper -white paper discussing Captiva);  
INGENIXMDL000248741;  
INGENIXMDL000185872;  
INGENIXMDL000202216 (Data Contribution Submission Form);  
INGENIXMDL00004623 (2010 Data Contribution Submission Form);  
INGENIX01801276;  
INGENIXMDL000457826 at 828 (Affidavit of Susan Seare dated March 25, 2005);  
INGENIXMDL000257826 at 830 (MDR/PHCS Data Contribution Manual);  
INGENIX01800147 (MDR & PHCS Databases – Product Plan 2000).

**EXHIBIT C****Simulations Illustrating Impact of Ingenix Data Approaches***1. The high low screen*

Suppose during the first year of collecting data there are 100 “standard” physician office visits (CPT 99213) in a given geozip in a given year. Most of them are standard office visits (CPT 99213) billed by a large multispecialty group at \$50. Ten of them are provided by a nearby competitor of the group at \$60; 10 by an exclusive boutique practice at \$70; five by a hospital based physician at a large nonprofit hospital in town at \$75; four visits are performed by a faculty member of the state medical university and are billed at \$80, five visits are to a physician in a research group at a private nonprofit university hospital cost \$90; and six visits are for suspected rare conditions at a nationally known cancer clinic in town at \$300; five visits are to follow up extensive surgery complications and are billed at \$310; five visits are to a subspecialist with a regional reputation for \$320 and five visits are for patients seen by a world famous subspecialist and are billed at \$365. Accordingly, the total billings are \$11,395.

**Year One Billed Charges**

Amount	Number	Total
50	45	2250
60	10	600
70	10	700
75	5	375
80	4	320
90	5	450

300	6	1800
310	5	1550
320	5	1600
365	5	1750
	100	11395

Some of the billings certainly appear to be high in comparison to the others (although it would be hard to describe them as outliers). The 80th percentile for these charges is \$90. Application of the 80th percentile concept limits allowed charges to \$90 per visit for the 21 procedures billed at \$300 or more. Actual allowed charges are \$6585 as follows:

#### Year One Allowed Charges with 80th Percentile Limits

Amount	Number	Total
50	45	2250
60	10	600
70	10	700
75	5	375
80	4	320
90	26	2340
	100	6585

Suppose, however, a high low screen is applied using the prior year's data in year two and suppose that there are 100 billed charges during year two identical to year one. Absent the high low screen year two billed charges are again \$11,395 and allowed charges based on the 80th percentile are \$6,585. What are the implications of imposing a high low screen on the data?

As originally developed by Tukey the low end of the range is the first quartile (25<sup>th</sup> percentile) less 1.5 times the inter quartile range (quartile three or 80th percentile less quartile one or 25<sup>th</sup> percentile). The high end of the range is the third quartile (80th percentile) plus 1.5 times the inter quartile difference (quartile three less quartile one). Here the 80th percentile is 90 and the

25<sup>th</sup> percentile is 60 so the inter quartile range is 30 and 1.5 times the inter quartile range will be \$45.

We apply the range calculation to the 50<sup>th</sup> and 80<sup>th</sup> percentiles in order to reflect the PHCS methodology. The 50<sup>th</sup> percentile for the data is \$60 and the 80<sup>th</sup> percentile is \$300.

Accordingly, the data range for year two will be \$15 (the low end will be the 50<sup>th</sup> percentile at \$60 less \$45) to \$345 (the 80<sup>th</sup> percentile at \$300 plus the \$45). During year two the five billings from the famous subspecialist will be eliminated from the data.<sup>1</sup> No data are eliminated from the lower end of the distribution. The eliminations reduce the 80th percentile from \$90 to \$80. The total allowed amount using the new 80th percentile limit drops to \$6325 from \$6585.

#### Year Two Allowed Charges After High Low Screen with 80th Percentile Limits

Amount	Number	Total
50	45	2250
60	10	600
70	10	700
75	5	375
80	30	2400
	100	6325

Moreover, by limiting the data for year two the 80<sup>th</sup> percentile for the data has dropped from \$300 to \$90. The inter quartile range is now 20 (80-60) and after multiplying by 1.5 the amount to be added and subtracted is \$30. The data range limits for year three have narrowed to \$30 to \$120 (\$60 for the 50<sup>th</sup> percentile) less \$30 and \$90 for the 80<sup>th</sup> percentile plus \$120.

---

<sup>1</sup> Why there would be any need to drop this data is unclear since the percentile will limit payment to this physician to the 80th percentile. It would also be hard to describe these billings as outliers.

If the same billings are provided during year three, all 21 billings higher than \$300 will be eliminated from the data. The new 80th percentile for year three drops to \$70. As a result allowed charges for year three drop once again, this time to \$6000.

#### Year Three Allowed Charges with 80th Percentile Limits

Amount	Number	Total
50	45	2250
60	10	600
70	45	3150
	100	6000

The 80<sup>th</sup> percentile is now \$70 as well and the 25<sup>th</sup> percentile is now \$50. The 50<sup>th</sup> percentile is \$50. The data range for year four will be \$20 to \$100. Accordingly, for years four and beyond the data will “stabilize.”<sup>2</sup>

The net effect of imposition of a high low screen using prior period data is to collapse or reduce the data range and to impose known limits on how the data may change. So long as the data are “right skewed” (as is often the case with billed charges for medical procedures) the impact of the range reduction will be to reduce allowed charges since more high charges than low ones will be eliminated and since the amounts attributable to the high charges eliminated will be far greater than any low charges that are eliminated.

## 2. *The mean to median ratio data rejection*

---

<sup>2</sup> Inflation within the data allowed into the data from year to year could move percentiles upward within the data range but the high low screen will impose an upper limit to the movement.

PHCS rejects data if the ratio of the data mean to its median exceeds 1.5 for medical procedures and 2.5 for surgical procedures. Consider two groups of billed charges submitted in an area for CPT code 99213 (a standard office visit) each with 50 claims.

- Group 1: 39 billed charges at \$50 and 10 billed charges at \$100 and one billed charge at \$110. Total billed charges for Group 1 are \$3055.
- Group 2: 26 billed charges at \$50 and 24 billed charges at \$105 for a total of \$3810.

The median billed charge for Group 1 will be \$50. The mean billed charge for Group 1 is \$61.1. The mean to median ratio for this group is 1.22. The data are accepted.

The median billed charge for Group 2 is \$50. The mean billed charge for Group 2 is \$76.50. The mean to median ratio for this group is 1.54. These data are rejected.

Had the Group 2 data not been rejected the 80th percentile for the 100 billed charges would have been \$100. Application of the 80th percentile to limit payment would have resulted in \$6740 in allowed charges or a reduction of two percent.<sup>3</sup>

Rejection of the Group 2 data reduces the 80th percentile limit to \$50. Payment of all claims using \$50 as the 80th percentile limit reduces the amount allowed for these claims to \$4999, a 27% reduction.

### *3. Imputation using CPT codes and geozips*

All of the MDR percentiles and portions of the PHCS percentiles are derived using imputation concepts. In order to impute billed charges for a procedure are divided by a relative value unit

---

<sup>3</sup> Manifestly, there are no outliers in these data.

for that procedure (in the case of MDR developed in house- and for PHCS developed by an outside firm). The normalized values for all imputed CPT codes are then arrayed, and percentiles established. In order to produce a percentile value for a CPT code the normalized percentile value is multiplied by the relative value to get the percentile value for that CPT code.

Suppose, for example, there are 50 billings for procedure 99211 (simple office visit) at \$50 and that the relative value for 99211 is 1.0. The normalized values for these 50 procedures are all 50.

Suppose also that there are 50 billings for procedure 99215: ten each for \$200, \$225, \$250, \$275 and \$300. The relative value for 99215 is found to be four so that there are ten each normalized values for 99215 at 50, 56.25, 62.50, 68.75 and 75.

By arraying these 100 values we find that the 80th percentile is 62.50. The 80th percentile of the imputed data is 62.5 which makes the 80th percentile for 99211 \$62.50 (one multiplied by the normalized 80th) and the 80th percentile for 99215 is \$250 ( $4 \times 62.50$ ).

As a result, the allowed charges at the 80th percentile for the imputed data are \$2,500 for 99211 (all are allowed at \$50) and \$11,750 for 99215, \$11,270 shown as follows:

#### Impact of Normalization on 99215 Charges:

Billed Charge	Relative Value	Normalized With Limit	Multiply Back =Allowed
200	4	50	200
200	4	50	200
200	4	50	200
200	4	50	200
200	4	50	200

[illegible]



275	4	62.5	250
275	4	62.5	250
275	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
300	4	62.5	250
		2,937.5	11,750

However, if each CPT is limited at the 80th percentile independently, the 80th percentile for 99211 is \$50 and the 80th percentile for 99215 is \$275 so that the total allowed for 99211 is still \$2500 but the allowed amount for 99215 would become \$12,250. The pooling has reduced the allowed amount for 99215 by \$500.

Moreover, this all presumes the accuracy of the relative value unit. Suppose MDR uses four as a relative value for CPT 99215 compared to 99211 while Medicare uses a relative value that is 16 times larger. In this scenario the 80th percentile would be 50 so that all billed charges would be allowed. Application of an inaccurate relative value for the pooling would improperly reduce the percentile limits.

# **EXHIBIT B**

**UNITED STATES DISTRICT COURT**

**DISTRICT OF NEW JERSEY**

-----  
IN RE: Aetna UCR LITIGATION,

MDL: 2020

This Document Relates To: ALL CASES

Master Case No. 07-3541(FSH)(PS)

-----  
**Responsive Report of Stephen Foreman, PhD, JD, MPA**

A. Introduction

1. I have reviewed each of the Affirmative Expert Reports submitted by the Defendants. My review has not changed the opinions expressed in my original Report. There are a number of common issues that impact all members of the classes in this case. As I further demonstrate in this Responsive Report, I can use the Defendant's own claims data bases to determine the amount of the damages applicable to each class member.<sup>1</sup>

B. Defendants' experts' statistical analysis: Prof. Slottje

2. Defendants' experts engage in a series of statistical exercises in an attempt to show that damages among Plaintiffs differ and that what they call "alleged" flaws in the Ingenix data and rate tables had no adverse impact on UCR reimbursement. Professor Slottje takes this approach.
3. What is absent from Professor Slottje's report is as meaningful as what is presented. Professor Slottje does not attempt to justify the Ingenix "high low" screen. He does not address the lack of representativeness of the Ingenix data. He fails to evaluate the impact of pre scrubbing data. He pointedly ignores problems with geozips, small numbers, statistical significance of percentiles, derived data and variation among providers in terms of training and experience. Rather, Professor Slottje attempts to demonstrate that somehow, these problems had no negative impact on reimbursement

---

<sup>1</sup> As Plaintiffs have informed the Court, Defendant United objected to my serving as an expert economist for Syracuse University as part of the FAIR Health project while serving as an expert for Plaintiffs in this matter. While I did not believe that there was a conflict, I have resigned from further work with the FAIR Health project.

(“no harm no foul”) and that even if a problem, they produced differential injury thereby depriving Plaintiffs’ ability to establish “common impact.”

4. For his first analysis, Professor Slottje (i) evaluates charge data levels for PHCS and a physician charge percentile system, Physicians’ Fee Reference (PFR) to conclude that sometimes PHCS is higher, so that there is “no problem” with using PHCS for UCR reimbursement, (ii) uses “un scrubbed” data obtained from UnitedHealth to conclude that the number of United claims above and below the 80<sup>th</sup> percentile varies randomly so that PHCS must not be flawed or biased downward and (iii) that because percentile distributions vary by CPT, geozip, and PHCS release, the resulting heterogeneity provides “lack of common impact” because Plaintiffs in different situations are reimbursed differently. None of these analyses provide evidence that supports their conclusions.
5. Professor Slottje evaluates the 75<sup>th</sup> percentile for 20 CPT / geozip combinations (out of four million possible combinations), finds that PHCS is greater than PFR in 13 and is less than PFR in seven. He notes that PHCS is greater than PFR by an average of \$14 in the 13 cases and that PFR is greater than PHCS by an average of \$11 in the seven cases. From this Professor Slottje concludes that “it is clear that [Ingenix] is not cooking the books or improperly reducing high charges.” The conclusion does not follow from the analysis.
6. Professor Slottje assumes that 75<sup>th</sup> percentile of PFR is UCR without explaining why this would be so. A small portion of PFR is calculated by surveying physicians but the major portion of it is computed using secondary data and Medicare fee schedules. Professor Slottje’s analysis merely establishes that “PFR looks like PHCS,” not that Ingenix does not “cook the books” or improperly reduced high charges.<sup>2</sup>
7. Professor Slottje states “I conclude that this analysis empirically refutes Plaintiffs’ assertions of any ‘systematic under reimbursement impact.’ The comparison of PHCS to PFR (a database of billed charges that is not connected to UHG or Ingenix) suggests that there is no systematic downward bias in PHCS relative to PFR.” Professor Slottje has attempted to show absence of “systematic” bias in PHCS relative to PFR but has not done so. The relationship between PHCS and PFR does not address the question of whether the Ingenix database is biased downward or has negatively impacted reimbursement.
8. The analysis constitutes an over-generalization as well. It infers lack of systematic downward bias in Ingenix from 20 cases out of four million possible CPT and geozip combinations.

---

<sup>2</sup> Professor Slottje appears to conclude that the high low screen, for example, does not bias percentile levels downward. However, rather than testing this proposition directly (which would be good science), which he could have done, he engages in the PFR exercise (which is not good science) .

9. Professor Slottje could have compared both the PFR and PHCS 75<sup>th</sup> percentiles to actual 75<sup>th</sup> percentile data from Aetna, from Cigna or from UnitedHealth in order to consider downward bias. He could have compared PHCS 75<sup>th</sup> percentile values with and without the Ingenix data manipulation. His failure to do so makes his conclusions unsupportable.
10. The PHCS / PFR analysis also ignores the nature of zip codes. Zip codes are not constructed based on equal population. They were developed for of mail delivery. PHCS uses geozips as the unit of geographic analysis while PFR uses zip codes. Professor Slottje “translates” PFR to geozips by taking the simple average of 75<sup>th</sup> percentile values for all of the zip codes in a geozip. This overemphasizes 75<sup>th</sup> percentile values for less populated zip codes and under emphasizes 75<sup>th</sup> percentile values for more populated zip codes. Generally, physician fees are higher in more populated areas than in less populated areas. The simple average technique could bias PFR “geozip” values downward. The proper way to do the translation would be to take a weighted average.
11. The PHCS / PFR analysis is statistically unreliable in another major respect as well. As noted, the analysis attempts to generalize to all CPT codes, all geozips and all percentile values from 20 CPT geozip combinations at the 75<sup>th</sup> percentile that Professor Slottje concludes are “the most common” in the Ingenix data. In addition to being limited (the analysis only uses five CPT codes) it starkly illustrates the lack of representativeness (and potential bias) of the Ingenix data.
12. The analysis uses 15 geozips that include Greensboro, NC, Houston, Long Island New York, Nassau County New York, North Texas, Chicago, Boston, Dallas, Cleveland, Manhattan, Daniels New Jersey, St. Louis, South New Jersey, Minneapolis and Ft Worth. These include only five of the 20 largest cities in the country (Houston, Chicago, Boston, Manhattan and Ft Worth).
13. Notable missing major cities (top 20 in the US in terms of population) from this analysis include Los Angeles, Phoenix, San Antonio, San Diego, San Jose, Detroit, San Francisco, Jacksonville, Indianapolis, Austin, Columbus, and Charlotte.
14. Also, the Ingenix data “undercount” claims from areas where there is a large Blue Cross market share when Blue Cross firms do not contribute data. Moreover, if Blue Cross providers consistently bill higher amounts, it would be expected that the lack of representativeness would bias percentile values in the Ingenix data downward.<sup>3</sup> The analysis does not consider the impact of missing Blue Cross billed charges.
15. Professor Slottje’s comparison only applies 75<sup>th</sup> percentile values. The reason for this limit is not explained.<sup>4</sup> The majority of Aetna’s percentile limits are at the 80<sup>th</sup>

---

<sup>3</sup> The analysis demonstrates that the Ingenix data are “flawed” based on lack of representativeness.

<sup>4</sup> It most likely relates to the fact that PFR reports the 75<sup>th</sup> but not the 80<sup>th</sup> percentile.

percentile as are Cigna's. Failure to compare PHCS and PFR at other percentiles also makes Professor Slottje's generalization problematic.

16. In order to generalize from a sample there must be a statistically significant number of observations and the observations must be representative. The 20 geozip / CPT combinations in this analysis do not provide enough observations to generalize and are not representative.
17. Professor Slottje claims that PHCS is not biased downward because the 75<sup>th</sup> percentile for PHCS is higher than the 75<sup>th</sup> percentile for PFR in 13 of 20 cases. This could easily occur by chance.
18. To say, as does Professor Slottje, that PHCS is higher than PFR for almost two million CPT geozip combinations and is lower in 1.9 million is merely an extension of the problems discussed above. Moreover, almost all of the four million of combinations are computed using "derived" values in both PHCS and PFR. The derived values have little to do with true percentile values medical care procedures in a community or market. As a result, any comparison between the two of them has little meaning.
19. Finally, the findings in Professor Slottje's comparison of PHCS and PFR are at odds with previous work involving Ingenix and PFR. In 2007 and 2008 the State of New Jersey used Ingenix consultants to develop fee schedule for automobile accident victims. The fee schedule prepared by Ingenix consultants were claimed to have been based on billed charges but they essentially reflected 130% of Medicare reimbursement for the same CPT codes. A comparison of PFR percentile values with the Ingenix / Medicare fee schedule found that the PFR was generally higher than Ingenix/Medicare 130%, suggesting that Professor Slottje's PFR analysis may well not generalize to other CPT codes or geographic areas.
20. In short, the only clear way to evaluate whether the Ingenix billed percentile values are biased downward is to compare them to accurate and representative real data. Professor Slottje's analysis provides no comparison of actual billed percentile values at all rendering his conclusions about the absence of downward bias unsupportable.
21. Professor Slottje next compares the 80<sup>th</sup> percentiles of "un scrubbed" data from United to the Ingenix product (presumably PHCS). He calls this an "experiment." "This experiment allows me to test whether or not these alleged actions, if they are assumed to have occurred, resulted in systematically biasing the PHCS release percentiles downward. The statistical analysis that will be performed is predicated on one key concept: that is, that data United Health Care contributed to Ingenix for use in creating the PHCS database medical and surgical modules are not "pre-scrubbed" or

manipulated in any way before receipt of such data by Ingenix and include all the data elements requested by Ingenix .”<sup>5</sup>

22. There is no “assumption” regarding pre-scrubbing. Aetna acknowledged the issue and worked with Ingenix to deal with it.<sup>6</sup> Ingenix acknowledges using the high low screen.<sup>7</sup> Professor Slottje offers no comment at all on the statistical impact of pre-scrubbing and the high low screen. Rather, he chooses to compare data submissions from a single data contributor that he presumes is not pre-scrubbed for a comparison to the Ingenix product.
23. The analysis is not an experiment. It is an exercise in comparing descriptive statistics from two sets of data.
24. Professor Slottje states “In the event that there was no manipulation of contributed charge data, then the charge data contributed by United Healthcare and incorporated into a PHCS release should be consistent, though not identical, with the amounts reflected in PHCS.” This is not correct. The United data may or may not have been pre-scrubbed. There is a priori no reason to expect that it would be “consistent” with the full PHCS data. Moreover, consistency – if it exists – says nothing about the question of bias.
25. Professor Slottje once again draws unsupported conclusions from the analysis. “The fact that some [United] CPT –geozip combinations have more than 20% of their charges which are higher than the amount reflected in PHCS as the 80<sup>th</sup> percentile and some have fewer than 20% of their charges which are higher demonstrates that Plaintiffs’ claim of systematic downward bias in the percentiles is simply rejected.”
26. First of all, Professor Slottje does not compare percentile values for United and PHCS at the 80<sup>th</sup> percentile (or any other percentile). He looks at the percentage of United charges that exceed the PHCS 80<sup>th</sup> percentile. Why there is no comparison of percentile values is unexplained. The only way to test for downward bias is to compare percentile values. This could have been easily done. Why wasn’t it?
27. Second, while Professor Slottje only uses United data, the rationale for this is not explained. He could have used CIGNA data, un scrubbed Aetna data or raw Ingenix data but did not. His “experiment” assumes – without testing for it – that United’s data is reflective and representative of un scrubbed data from all other Ingenix contributors. This is unlikely to be the case and is subject to verification.
28. Third, the analysis is limited to the 20 “common” CPT-geozip combinations used for the PFR comparison and a “random sample” of 384 CPT-geozip combinations. To assume

---

<sup>5</sup> Slottje report at p. 17. How Professor Slottje can conclude that the data were not pre-scrubbed is unexplained in the report.

<sup>6</sup> Deposition of Sharon Justo (Draft) at pp. 59, 83.

<sup>7</sup> Justo deposition at p. 117.

that any findings from these 400 combinations –for one percentile- can generalize to four million combinations is once again, problematic.

29. Fourth, this comparison is limited. It does not compare 80<sup>th</sup> percentile values. It does not compare distribution shapes. It does not compare a range of percentiles. It does not compare billed charges below the 80<sup>th</sup> percentile. It does not compare the level of percentiles higher than the 80<sup>th</sup> or the shape of the distribution above the 80<sup>th</sup> percentile. It merely compares “counts” of billed charges in United data above the PHCS 80<sup>th</sup> percentile level.
30. The comparison purports to consider 384 CPT-geozip combinations selected at random. There are unanswered questions about the “randomness” of the selection of the 384 combinations. The great majority of the CPT-geozip combinations in the PHCS database do not have enough data to construct percentiles. Accordingly, by drawing a random sample from PHCS it is more likely than not that a majority of the randomly selected combinations would not have enough counts in the United data to provide a comparison. What was done to ascertain that there were sufficient counts?
31. In a majority of cases less than 20% of United’s billed charges exceed the PHCS 80<sup>th</sup> percentile. What this shows is that United’s billed charges for the CPT-geozip combinations at the 80<sup>th</sup> percentile are generally less than the PHCS product. In some cases United’s 80<sup>th</sup> percentile values are higher. That is all this analysis shows. No other meaning can be attached to it.
32. It would be expected that the vast majority of the United claims come from United’s in-network providers. The only thing that Professor Slottje’s analysis shows is that providers who billed United generally bill lower and sometimes billed higher than all of the providers in the PHCS “pool” (even after the high low screen and the Aetna pre-scrubbing ).
33. Professor Slottje concludes “Thus, the empirical results do not support Plaintiffs’ systematic manipulation and scrubbing allegations.” This conclusion cannot be drawn from the analysis. In fact, there was manipulation of the data and there was pre-scrubbing. If Professor Slottje is concluding that it could not have occurred there is something wrong with the analytic design because it did, in fact, occur. The question is the impact of the manipulation and the pre-scrubbing. This can only be tested directly. Professor Slottje’s test did not consider what the manipulation and pre-scrubbing did to percentile values.
34. Finally, Professor Slottje bootstraps his findings that some of United’s 80<sup>th</sup> percentiles exceed Ingenix PHCS 80<sup>th</sup> and some are less into a conclusion about common impact: “Further, since the results also indicate that some charges would have been higher and some lower than those determined based upon the PHCS 80<sup>th</sup> percentile in various PHCS releases, this analysis also confirms my opinion that each of the Plaintiff’s claims related to flaws in the database at issue in this case requires separate inquiry by (among other



things) CPT code, geozip and release to determine if, and, if so how, the alleged PHCS database flaws may have impacted claim reimbursement.”

35. The PHCS database is a combination of data provided by more than 100 firms. For any one contributor – like United – or for that matter Aetna or CIGNA – and for any given CPT - geozip combination at any point in time, statistical inquiry would expect a distribution where some of the contributors would have more charges that exceed a given percentile and others would have less. This does not translate into the need for “separate inquiry” for each CPT-geozip-time combination.
36. The third avenue explored by Professor Slottje is what he terms “heterogeneity.” Professor Slottje notes that “it is also important to reiterate that the percentile amounts reflected in any PHCS release obviously depend on the underlying distribution.... In this section I further demonstrate the absence of a common impact on reimbursements ... by showing that the distributions of charge data vary by ... CPT code, geozip and release.
37. Professor Slottje uses heterogeneity of distributions over time to conclude that because the Ingenix 80<sup>th</sup> percentiles were derived from different distributions by CPT-geozip-time combination that there can be no common impact and there must be “individualized inquiry.” The conclusion does not follow from the premise.
38. Professor Slottje’s approach would deny the existence of a common scheme – and the common proof that could establish it - if the scheme produced different results in different parts of the country for different services at different times. By this reasoning, there could be no class action involving a national employer who arbitrarily deducted 5% of all employees’ wages because employees were paid different amounts, lived in different parts of the country, worked different days of the week, were of different sex, had different hair color and so on. The current inquiry considers the predominance of common class wide issues compared with individual issues. The issues related to the way that the Ingenix data are used is class wide in this case. Questions relating to the way that the Ingenix percentiles have been developed and applied do not differ by CPT or geozip or over time. The distributions may differ by CPT, geozip and time but the process did not.
39. Professor Slottje notes “my first observation emerges immediately ... The total number of CPT-geozip combinations varies dramatically from Release 1 in 2004 to Release 2 in 2008. Once again, this has no meaning in the context of class wide as opposed to individual issues. By this logic a multi-year conspiracy would never be the subject of a proper class action if there were price level effects over time.
40. Professor Slottje states “the universe of CPT-geozip combinations that existed in 2004 is not the same as the universe existing in 2008.” Nor would it be expected to. A successful common scheme would be expected to expand. The expansion is not grounds to conclude that individual issues predominate.

41. Professor Slottje notes that 15% of the 3.8 million CPT-geozip combinations switched from actual to derived or from derived to actual over time. Once again, the approach confounds class wide issues and individual issues. Ingenix did not consider or make the changes on a case by case individual basis. The switches that Professor Slottje points to were data driven, formulaic and applied to the entire universe of Ingenix CPT – geozip combinations. Proof regarding their appropriateness will not be individual. It will be statistical and class wide.
42. Finally, Professor Slottje uses his 384 CPT-geozip random sample to conclude that since distribution shapes changed over time that there is no common impact. Once again, the use of Ingenix is a common scheme. It was statistical and formulaic in its inception and continues to be applied this way – nationwide. The issues that attach here relate to the appropriateness of the process itself, matters about which Professor Slottje does not address. The issues relating to the appropriateness of the process are class wide: are common class wide. The only way efficiently to investigate them is on a class basis. It would be inefficient to conduct millions of separate trials on the statistical validity of the way that Ingenix data has been constructed, maintained and applied to limit reimbursement. While the results of damage calculations may differ among class members, the method of calculation will not vary.
43. Professor Slottje's attention to heterogeneity and his illustration of the observed variance of the United data to PHCS and the PFR fee schedule to PHCS does not convert class wide issues to individual issues. It does call into question, however, whether PHCS percentiles can ever be used as surrogates for UCR to limit reimbursement. If a statistical process is to be used for payment it needs to be both sensitive and specific in its application. Sensitivity means that it needs to impact the right individuals. In this case that means that use of the Ingenix data needs to target billed charges that are indeed unreasonable. Specificity means that the process "needs to get it right." Reimbursement limits need to be correct.
44. The "proofs" offered by Professor Slottje and his colleagues demonstrate that the PHCS – UCR system is neither sensitive nor specific. It is not sensitive because it will automatically declare some providers to be billing at unreasonable levels (those in the top 20% regardless of reasonableness) in an area where all providers are billing reasonable amounts. It is not specific because, as Professor Slottje notes, from case to case percentile levels may be too high or too low. Rather than destroying common impact, the lack of specificity actually establishes it. There can be no justification for random reimbursement.

C. Dr. Cantor

47. The Cantor report identifies five so-called medical care "benchmarking" products in order to compare Ingenix to them. The comparison presumes - without testing or inquiry - that these comparative data are fair, accurate and representative of all

physician claims for the areas and procedures that they describe: That is, are comparative data reliable? Are they UCR? Dr. Cantor “believes” so because they were compiled in ways that did not incorporate the Ingenix problems. This is simply not the case. The comparison data have problems similar to or more serious than the Ingenix data. Dr. Cantor’s comparison (similar to Professor Slottje) has no value other than observing which data are higher, lower or otherwise different from one another. The analysis can do nothing to establish whether the Ingenix products are at all reliable for providing billed charge percentile information

48. There are many problems with the Ingenix data. One of the most serious is whether or not the data collected are representative of the universe of physician claims and, if not, whether the contribution process introduces bias into the data. Ingenix has not reported the proportion of all physician claims that its data represent and does not appear to have tested it for representativeness. The same issue applies to the data used for Dr. Cantor’s comparisons. Each of the datasets used by Dr. Cantor has been developed from far less than all physician claims. Each appears to have its own data collection issues which Dr. Cantor does not consider or address. None of them appears to have tested for representativeness. None of them even remotely resembles a UCR standard.
49. The comparison data are not benchmarks at all. One of them is a macro level compilation of Medicare claims by count and billed charges that do not identify private commercial billed charge percentile information. The other four are products sold to providers to help them fix their fee levels. They are not used by health insurers to identify UCR. Their purpose is to help physicians avoid getting their fees reduced so that there is an incentive to produce values that are (on balance – not “across the board”) close to but less than Ingenix.
50. The reason for the comparison is not clear. If Dr. Cantor wished to check for contribution bias she could have done so: Find a way to obtain all physician charges in an area and compare the percentile values for it to Ingenix.<sup>8</sup> Failing that, if there is no good way to obtain all billed charges, conduct a scientific survey to find percentile values for all physician charges in an area and compare the results to Ingenix. If Dr. Cantor wished to check for data processing bias she could have done that as well. Get all of the Ingenix raw data before processing. Evaluate what happened to billed charge percentiles before and after processing. Either of these approaches would produce conclusions with far greater validity.

---

<sup>8</sup> Indeed, legislation was proposed and introduced in New Jersey that would have collected all provider billed charges in order to make such a comparison. The legislation was opposed by health insurers including Defendants.

51. Dr. Cantor concludes that Ingenix products are not biased downward because in some instances Ingenix values are higher than the comparison data. She adds that that there must be “no common impact” because sometimes Ingenix values are higher and sometimes they are lower. The nature of a statistical process is that involves distributions and variance. A statistical comparison will usually produce values that are higher and lower. As a result, Dr. Cantor’s “no common impact” conclusion is compelled by the nature of the analysis. Her underlying hypothesis, if there is downward bias in Ingenix then Ingenix billed charge percentiles will always (or “across the board”) be less than billed charge percentiles in comparative data, is not testable.
52. Dr. Cantor states: “Plaintiffs hypothesize that information about providers’ charge value and distributions is not readily available.” This mistakes and misstates Plaintiffs’ position (which is not an hypothesis). “Full and accurate” information about the universe of all physicians charges is not publicly available. The only way to do Ingenix “right” is to use all physician charge data. The Ingenix products are computed using less. Ingenix and Defendants’ experts either do not know or do not report what portion of all charges the Ingenix data represent. None of the comparative data used by Dr. Cantor<sup>9</sup> comes close to Ingenix in terms of the amount of data collected, much less represents the universe of physician charges. The comparative data too, are constructed using less than all physician charges. Like Ingenix, they use derivations to estimate percentiles because there is not enough data to compute them. Like Ingenix, they aggregate data (making UCRs more remote than a community or geographic market) for convenience because there are not enough data to compute billed charge percentiles. Like Ingenix, representativeness and data manipulation are unresolved issues for them with unknown impact.
53. Dr. Cantor adopts an assumption of reliability of the comparative data based on her observation that they have been referenced in court proceedings, have been used by industry associations and have been produced by the government.<sup>10</sup> None of the comparative data has been tested scientifically for reliability. The degree of reliability - for Ingenix and each of comparisons used by Dr. Cantor - is unknown. That is exactly the problem with Ingenix and thereby extends to the UCR process used by Defendants.
54. Dr. Cantor points to a number of references available for purchase on Amazon. Certainly, other materials are available. None of them is used for health insurance UCR

---

<sup>9</sup> Other than the underlying data for the PSPS – but the PSPS itself is merely a summary and represents a much different patient population.

<sup>10</sup> Cantor Report, paragraphs 46-48.

benchmarking. The availability of such materials says nothing about the amount of information they contain or their reliability.

55. Clearly, the comparison data used by Dr. Cantor were and are available to Defendants for establishing UCR. Defendants elected not to use them for UCR. The comparison data are public so that anyone could use and understand them, including patients and physicians. The comparison data are far cheaper to obtain and use than the Ingenix products. If they are so reliable, transparent and efficient,<sup>11</sup> why would Defendants insist on using Ingenix? Indeed, in the New Jersey case referenced by Dr. Cantor the Medical Society of New Jersey urged use of PFR rather than Ingenix for a physician fee schedule. The proposal encountered universal resistance from the insurance community.

56. Dr. Cantor mischaracterizes Plaintiffs' suggestion that done properly, UCR would reflect provider specialty, training and other factors as a demand for "excessive segmentation."<sup>12</sup> Plaintiffs do not seek excessive segmentation. Defendants experts use segmentation for the purpose of arguing lack of common impact then argue that Plaintiffs' position seeks excessive segmentation. The simple question here is how best to determine UCR. Dr. Cantor's problem is that formulaic percentile distribution formulas for UCR cannot accurately deal with medical care services that are specific, local and highly differentiated. Segmentation cannot deal with it but there are techniques that can. Dr. Cantor does not explore them.

57. Dr. Cantor presumes that it is possible to use the comparison data to make conclusions about the Ingenix products. For any degree of scientific comparison this would require that the comparison data represent the same unit of analysis and the same study populations. This is not the case.

58. Ingenix collects data from slightly more than 100 private commercial health insurers. The Ingenix data include 1.4 billion records.<sup>13</sup>

- Data are voluntarily contributed.
- The unit of analysis is the geozip, a three digit zip code area.
- Data are reported by percentiles by CPT and HCPCS medical and surgical, dental, anesthesia and HCPCS products.

---

<sup>11</sup> And produce lower percentiles.

<sup>12</sup> Cantor Report, paragraph 43: "the highly disaggregated approach that Plaintiffs seek."

<sup>13</sup> INGENIXMDL000109228.

- Data are “processed” to produce the percentiles.
- One of the products (MDR) uses imputation to “estimate” all percentile values. The other product (PHCS) uses contributed charges where there are ten or more claims for the CPT geozip combination and imputes or estimates percentile values otherwise.

59. Dr. Cantor relies on “Medical Fees in the US” compiled by Practice Management Information Corporation. PMIC states that its product has been developed over a number of years based on more than 400 million “actual physician charges.”<sup>14</sup> Dr. Cantor says Medical Fees contains data from “more than 400 million claims.” The difference between charges and claims is subtle but important. A claim often has more than one claim line. Each claim line is a separate charge. Medical Fees is likely based on substantially less than 400 million claims and these claims likely were collected over multiple years.

- Medical Fees is compiled from data collected from service bureaus, group practices, clinics and universities, and management system vendors. The data are not representative and have not been tested for generalizeability.
- The unit of analysis for Medical Fees is “national averages.” This is far different from a community as relates to UCR or physician markets which are local in nature. It is substantially different from the concept of a geozip used by Ingenix.
- Medical Fees provides national averages for percentiles at the 50<sup>th</sup>, 75<sup>th</sup> and 90<sup>th</sup> levels. Ingenix reports percentiles for the 50<sup>th</sup> through the 95<sup>th</sup>. Many health insurers (including Defendants) commonly use the 80<sup>th</sup> percentile. For an “average” of a percentile to be close to reliable the percentiles must be distributed standard normally. Many (most) percentiles for medical care are not. National aggregation produces statistical problems for parametric transformation back to local values that Dr. Cantor has not explored.
- The national averages in Medical Fees are translated to the local level using a geographic adjustment factor or GAF.<sup>15</sup> “The Geographic Adjustment Factors (GAF) are calculated using “a weighted average of the work, practice expense and malpractice expense components of the GPCIs.” The Medical Fee GAF is equivalent to the Medicare GPCI. Use of a national average with a geographic adjustment

<sup>14</sup> Practice Management Information Corporation, Medical Fees in the US” at p. 2.

<sup>15</sup> PMIC, supra, p. 3.

factor is only as good as the GAF. GPCIs have been criticized and the Medical Fees product would be subject to the same criticism. Dr. Cantor's assumption of reliability for Med Fees does not consider issues produced by the GAFs.

- Dr. Cantor suggests that because the data for Medical Fees is not contributed by health insurers it is presumptively reliable. This is not the case. There could be other problems including representativeness and the way that "small cell counts" are handled. Medical Fees does not describe any tests for data reliability that it may conduct.
- In short, Medical Fees is a mathematical estimate of what it thinks fees in a community "should" be based on national averages and a GAF. It bears no relationship to actual billed charges in a community. To the extent that Medical Fees relates at all to Ingenix only shows that both of these products produce calculate values for estimated CPT / geographic combinations. Since neither system provides direct information on actual billed charges in a community, no conclusion can be drawn relative to their suitability for UCR, or their accuracy.

60. Dr. Cantor also relies on MAG Mutual Healthcare Solutions, Inc.'s Physicians Fee and Coding Guide. Dr. Cantor notes that the PFCG has been developed from "actual" physicians' charges, health insurer data bases and an "extensive" analysis of health insurer EOBs but there is no indication of how much data is collected and the geographic areas represented. MAG Mutual is a physician owned and managed medical professional liability insurer.

- a. PFCG does not report percentile values. Rather, it reports "high and low" values and the Medicare RVU. It also reports the Medicare payment value.<sup>16</sup> There is no relationship between the percentile values in PFCG and the percentile values in the Ingenix products.
- b. PFCG like Medical Fees uses a geographic adjustment factor applied to a derived value. The geographic structure is not described in the MMHSI materials. Dr. Cantor states that it is an "idiosyncratic" 400 geographic area system. However, the PFCG software appears to provide a state or national value with a geographic adjuster similar or identical to the Medicare GCPI (like the Medical Fees system).
- c. Like MDR, PHCS and Medical Fees, PFCG does not purport to provide guidance relating to UCR based on actual physician fees in a community. The numbers

---

<sup>16</sup> MAG Mutual Healthcare Solutions, Inc. Physician Fees on Disk (2010).

produced by PFCG express an estimate based on an aggregation modified by a geographic adjustment. Once again, any comparison of PHCS with PFCG merely compares the way that these systems generate estimates. The comparison provides no information regarding reliability of the estimates or whether they are appropriate for use in UCR determinations.

61. Two other sources of “information” relied upon by Dr. Cantor include the Wasserman Medical Publishers Physician Fee Reference and the NDAS Medical-Dental Coding and Fee Guide. The NDAS is, apparently, a trade name for the Wasserman dental fee reference.

- a. According to Wasserman, the NDAS is a “national fee reference with a section on geographic multipliers for all US zip code three digit prefix areas. The NDAS ... is zip code specific .... A developers version of NDAS exports percentiles at the 40<sup>th</sup>, 50<sup>th</sup>, 60<sup>th</sup>, 70<sup>th</sup>, 80<sup>th</sup>, 90<sup>th</sup> and 95<sup>th</sup> percentiles. The NDAS is specialty specific. The PFR provides similar information for medical care services using the CPT code.<sup>17</sup>
- b. The PFR provides physician fees “for all US zip code prefixes” but only at the 50<sup>th</sup>, 75<sup>th</sup> and 90<sup>th</sup> percentiles.<sup>18</sup>
- c. PFR materials do not indicate whether the data are collected and managed at the geozip level and reported at the zip code level using a geographic adjuster or whether it has aggregated zip code level data to the three digit geozip.
- d. The PFR and the NDAS provide percentile information at the zip code level for all CPTs. According to PFR some of the input data is obtained from physician office surveys. However, physician response to surveys is notoriously low. There are thousands of CPT codes. It is likely that only a small part of the information contained in the PFR come from surveys and that most of it is taken from other sources (such as Medicare or clearinghouses) or derived.
- e. Like the other so-called “benchmarks,” PFR and NDAS do not purport to to be UCR based on actual fees in a community.<sup>19</sup> The numbers are equally estimates based on an undisclosed data collection process and some undisclosed method for filling in the blanks when there are not enough data. The comparison of PHCS with PFR and NDAS simply looks at the way that these systems generate

<sup>17</sup> [www.ndas.com](http://www.ndas.com) accessed April 29, 2010.

<sup>18</sup> The PFR product reports values by CPT code and zip code. This description suggests it is provided by geozip.

<sup>19</sup> Indeed, PFR specifically states in its data agreement that it is not to be used for UCR.



estimates. The comparison provides no information regarding reliability of the estimates or whether they are appropriate for use in UCR determinations.

62. The last database used by Dr. Cantor is the PSPS or the Physician Supplier Procedure Summary File. The PSPS produces physician/supplier claims data that have been summarized at the HCPCS/ CPT level by Medicare Part B carriers. Basically, this means that the unit of analysis is the state level although New York has three carriers, Connecticut has two and California has two.<sup>20</sup> Dr. Cantor describes this as “CMS Region” but it is not a CMS Region as that term is used by CMS.

- a. PSPS reports total dollar value of claims by CPT and total counts which permits computation of an average claim by CPT.
- b. Data are reported by the Part B carriers. CMS conducts some verification of data submissions but cautions users that there may be data errors.
- c. The PSPS contain information relating to modifiers and to specialty.
- d. Because it provides fundamentally state level data, the PSPS bears no relationship to any of the other sources of information used by Dr. Cantor or to the MDR and PHCS.
- e. The “population” of claimants that provide the PSPS data are Medicare patients. The population of claimants that provide the PHCS and MDR data are patients covered by private commercial insurance (often excluding Blue Cross). These are two very different populations. Accordingly any scientific comparison of PSPS and PHCS is likely to present fundamental problems.
- f. CMS does provide billed charge data at the claim level in the form of Carrier 5% files. These data provide a five percent sample of all Medicare Part B claims in the US and contain information regarding billed charges, modifiers, specialty type and place of service and geographic location (at the County level). The Carrier files would provide information that is far superior to the PSPS, but for some reason they were not considered by Dr. Cantor for her analysis.

63. Dr. Cantor observes that 93% of the 1.5 billion social security claims contained in PSPS data in 2006 were represented by 500 CPT codes.<sup>21</sup> Based on this, she concludes “This

---

<sup>20</sup> [www.cms.gov](http://www.cms.gov)

<sup>21</sup> Cantor Report, p. 16. There is no reason to assume that the same 500 CPT codes would produce 93% of the non-Medicare claims for commercially insured patients.

analysis suggests that there is little need for yet more segmentation in the current method employed by Ingenix” (such that further specification relating to training and experience would produce more problems than they resolve).<sup>22</sup> The argument does not flow from the data and improperly invokes statistics to undermine common meaning.

64. Plaintiffs believe that UCR limits need to be based on the “same or similar services” and that, services can differ depending on the training and experience of the professionals who render them. A statistical approach that deals with this non parametrically segments based on characteristics, but there is no fundamental reason (statistically or otherwise) why recognition of such qualitative differences would require segmentation.<sup>23</sup> Moreover, if as Dr. Cantor shows, 500 CPT codes represent more than one billion of the 1.5 billion annual social security claims, there would apparently, be more than a sufficient number of claims in many instances to further refine percentiles.

65. Dr. Cantor also considers modifiers in order to rebut contentions that the Ingenix treatment of modifiers provides another source of problems with the data. Dr. Cantor conducts what she calls a “matched pairs” test. In reality this analysis is not a statistical ‘t’ test of matched pairs but a simple comparison of billed charge averages by CPT code in the PSPS data for billed charges that attach to claims that have modifiers and billed charges for the same CPT code that did not have modifiers. She concludes “Based on the matched pairs, my analysis suggests that if Ingenix were to include all charge data with modifiers in constructing distributions of charge data it would be more likely to *reduce* UCR values than to increase them.” The conclusion is not supported by the analysis.

- a. First, contrary to Dr. Cantor’s assumptions, Ingenix includes billed charges from some claims with modifiers and excludes billed charges from claims with other modifiers. She did not consider this in her analysis. It is unknown without specific inquiry what the impact of including the excluded billed charges would be. Why Dr. Cantor did not conduct this analysis with Ingenix data – which she could have done – is not known.
- b. Second, the impact will be on percentile values, not on the UCR. Percentile values may change. UCR values may or may not change. Indeed, just because PSPS averages change does not mean that any particular percentile value –

---

<sup>22</sup> Cantor Report, p. 15.

<sup>23</sup> In a different section Dr. Cantor in fact argues for aggregation coupled with a multiplier to deal with the segmentation issue. Why she would use a geographic multiplier but not a multiplier based on training and experience in order to avoid “segmentation” is not clear.

particularly the 80<sup>th</sup> percentile commonly used by Defendants – will change at all.

- c. Third, this analysis is overly simplistic. It looks at whether billed charge averages are greater or less - given modifiers or no modifiers. The conclusion assumes that the dollar value of all of the CPT codes are equal which they are not. It is possible that the dollar value (by frequency or amount both) for the 144,000 cases where the billed charges are greater for modified as opposed to unmodified will be greater than for the 211,000 cases where the reverse is true. Further, the conclusion could easily be erroneous if the difference between modified and unmodified billed charges is large for the number of cases when modified exceeds unmodified, but small for those cases where unmodified billed charges are greater. Dr. Cantor could have conducted these inquiries but chose not to do so.
  - d. Fourth the analysis fails to consider common sense. Why would billed charges differ by modifier status at all as a general rule unless there modifiers are more commonly used for some medical procedures? Conversely, if there is selective elimination of billed charges that include certain modifiers and if the billed charges for those procedures are generally higher, then elimination of them will decrease percentile levels. Specific examination is needed to ascertain what is happening.
  - e. Fifth, Dr. Cantor assumes that all modifiers are the same for her analysis. There may be reasons to keep billed charges for some and to them for others that a case by case analysis would justify.
66. Dr. Cantor next evaluates what she calls “geographic segmentation.” This is a euphemism for justification of Ingenix’ use of geozips to aggregate data at the geozip level in lieu of identifying a proper geographic market. She notes that each of the comparison data products uses a different geographic approach, requiring her to “map” one to another.<sup>24</sup> There is no theoretic or scientific justification provided for such mapping.

---

<sup>24</sup> Cantor Report p. 19.

67. In her analysis Dr. Cantor compares Ingenix to the other data to “investigate whether the Ingenix Database is biased downward systematically or across the board when compared to the available benchmarks.”<sup>25</sup> The analysis is unsound.

- a. “Systematic bias” or “systemic bias” include influences that affect the accuracy of statistical measurements. The bias is inherently internal or intrinsic. A clock that is consistently five minutes slow has a systematic bias.
- b. A system can have a systematic bias even though it has both positive and negative components. The bias need not be “across the board.” A system that over-reimburses half its patients by five percent and under-reimburses the other half by ten percent would have a systematic downward bias of five percent (assuming equal reimbursement).
- c. The applicable “UCR” is the value that would obtain “but for” the influence that causes the bias.
- d. If bias is to be detected by comparison to an external standard that external standard must be an equivalent UCR. If the external standard is subject to the same bias – or if the accuracy of the external standard is unknown – the comparison becomes meaningless. Comparison of a watch’s time with one that that is six minutes slow erroneously leads to a conclusion that the watch is one minute fast. Comparison to one that reads five minutes slow erroneously leads to a conclusion that the watch is accurate. Comparison to a watch that is randomly fast, slow and on time erroneously compels the conclusion that the watch cannot keep good time. None of these conclusions will be right.
- e. Systematic bias can be identified and corrected by eliminating the “internal” influences that create it. If an internally accurate percentile can be identified, the bias can be identified and corrected internally.

68. Defendants elected to use the Ingenix system of billed charge percentiles to limit reimbursement in their UCR system. Not MAG, not PFR, not NDAS, not PMIC and not PSPS. They could have used those systems but they did not. By electing to use Ingenix for UCR, Defendants assumed an obligation to develop and apply it in a fair and accurate manner.

69. There are two scientific methods to determine if the Ingenix data are biased: First, gather all billed charges<sup>26</sup> to compare with the subset of billed charges collected by

---

<sup>25</sup> Cantor Report p. 22.

Ingenix in order to reject the notion that the Ingenix data represent a “biased sample” that taken as a whole reduces billed charge percentile values in the data (even though for some values within the data may be higher and some lower). Second, evaluate the internal data manipulation in order to reject the notion that the manipulation has – taken as a whole – reduced the billed charge percentiles.

70. Dr. Cantor could have elected to follow each of these avenues but did not. Instead, she elected to choose five comparison data sets. None of them has been acknowledged as UCR. Nor is it likely that they will be so acknowledged, limited as they are in terms of data collection and their own problems in terms of geographic reach and dealing with small cell counts.
71. By comparing PHCS with these five data sets Dr. Cantor can – at best – show that the billed charge percentiles in PHCS may be higher or lower or the same as the comparison data. The hypothesis – that the PHCS data are not biased – cannot be tested using these comparisons. Without knowing the true reliability of the comparison data (which has not been tested for reliability in any way) any conclusions about the level and direction any differences have no meaning. “There is no way to know whether the comparison clock is fast, slow or accurate.”
72. Dr. Cantor could also have used the contributed Ingenix data prior to its manipulation to show that the manipulation did not reduce the percentile values. Once again, she did not. As a result, her investigation cannot possibly determine whether the Ingenix data manipulation reduced percentile values.
73. Further, the development of percentile data is by its nature statistical. Distributions built from data that are less than the whole will likely be different from the true distribution. As a result, comparison of distributions among subsets of the whole will by the very nature of statistics produce variation with one another: some high, some low. The very process will never produce “across the board” results.
74. Dr. Cantor conducts a “frequency” analysis to test her characterization of Plaintiffs’ “hypothesis” that class wide proof of common impact would find that Ingenix values are less than values that would have prevailed but for the challenged conduct in all or nearly all members of the proposed class. As is common to Defendants’ experts, this misrepresents the nature of Plaintiff’s allegations and mischaracterizes the common impact standard.

---

<sup>26</sup> Or conduct a fully scientific survey that accurately identifies them.

75. The findings of the frequency comparisons are set forth in Table 14 of the Cantor Report.<sup>27</sup> The description of Table 14 is confusing. The description characterizes “Plaintiffs’ theory” as Ingenix values below the comparisons. The description notes “the second column of Table 14 reveal that their theory is contradicted by more than half the comparisons as indicated by the proportions under 50 percent.” This comparison illustrates a number of problems:

- a. There is no indication of which CPT codes were used for the comparisons.
- b. The comparison compares Ingenix 80<sup>th</sup> percentile with the MAG “high value.” There is no reason at all to assume that the MAG high value has any relationship whatever to the Ingenix 80<sup>th</sup> percentile. The findings seem to show that 54% of the Ingenix 80<sup>th</sup> percentile values are lower than the MAG high value and that 41% of the Ingenix percentile values are higher.
- c. The analysis then compares the Ingenix 90<sup>th</sup> percentile to MAG high and finds only 44% of Ingenix values lower. How can it be that at a higher percentile less (as a percentage) of the Ingenix values are higher than the same MAG value?
- d. The PSPS comparisons compare average Ingenix with average PSPS. The comparison is found to be “ambiguous” in 42% to 44% of cases. Because it is necessary to aggregate geozips to CMS “regions” Dr. Cantor identifies an Ingenix high and an Ingenix low average for comparison to the CMS average.<sup>28</sup> The most appropriate conclusion here is that the comparison produces ambiguous results, a conclusion that Dr. Cantor does not offer.
- e. The PSPS comparison is particularly problematic. It compares two sets of data with fundamentally different geographies (the so-called mapping cannot make them comparable) and two fundamentally different patient groups (older and younger patients). Medicare billed charges may well be less than private commercial billed charges due to patient mix and provider selection. It might be understandable that at the average, Medicare billed charges may be slightly lower than private commercial billed charges – but that says nothing about the existence or lack thereof of systematic downward bias in Ingenix.
- f. The NDAS and PRF comparisons are the only ones that match at all with Ingenix in terms of geozip and CPT / dental code and percentile value (although the PFR

---

<sup>27</sup> Cantor Report, p. 24.

<sup>28</sup> The Carrier files are reported at the state level but Dr. Cantor describes them as CMS regions. It is not clear whether she has aggregated these data by CMS region or not.

comparison is at the 75<sup>th</sup> percentile and the NDAS at the 80<sup>th</sup>). Here PFR is higher than Ingenix 56% of the time and NDAS is higher 68% of the time. These findings contradict those offered by Dr. Slottje who appears to have found that Ingenix is higher than PFR.<sup>29</sup> The results of these two comparisons are consistent with those found in a comparison of an Ingenix physician fee schedule with PFR in New Jersey. The findings here are also consistent with (but do not prove) the existence of systematic downward Ingenix bias but are not reported as such by Dr. Cantor.

- g. PMIC geographic areas differ from geozips. PMIC reports values nationally, then adjusts for region (equivalent to the Medicare GPIC areas which are not the same as CMS regions either). The “mapping” from geozip to Medicare GPIC area is awkward and produces “ambiguous” results 52% to 57% of the time.
- h. Essentially, the high level of ambiguity renders the PMIC comparison meaningless but Dr. Cantor does not report it as such.
- i. Dr. Cantor concludes “the results in the last column indicate that 17 to 51 percent of the comparisons are contrary to Plaintiffs’ theory. This proposition is an indication of the likelihood that Ingenix value exceeds the maximum value for services by geographic area based on other available information. This evidence further suggests that many members of the proposed class might have actually benefitted from the use of the Ingenix database to determine UCR rates.” The conclusion is not supported by the data.
- j. What the analysis shows is that the PSPS and PMIC comparisons are meaningless. The results for MAG are also questionable given the vagueness of the MAG high value. The PFR and NDAS results are consistent with *possible* downward bias in the Ingenix data but neither establish nor disprove it.
- k. Moreover, to observe as does Dr. Cantor that “more than half” of the eight comparisons is under 50% when four of the eight comparisons have ambiguous values between 40% and 60% is misleading. If the ambiguous values are split 50/50 six of the eight comparisons would fall under the “Plaintiffs’ theory with Ingenix lower than the comparison.

76. Dr. Cantor’s next analysis consists of so-called “matched pair metrics.” Dr. Cantor “normalizes” by considering the percent difference between Ingenix and the

---

<sup>29</sup> Slottje Report at p. 12.

comparison data. She conducts a “simple average comparison,” a “weighted average comparison based number of claims” and a “dollar weighted average of matches.” Following this, she pools the CPT codes into AMA sections to claim that the results are robust for AMA sections.

- a. Once again Dr. Cantor establishes a hypothesis that cannot be proven with statistical data of this nature: “If the Ingenix values are artificially low, then I would expect to find *persistent* negative average percent differences when I compare Ingenix to the benchmarks... if the Ingenix Database values are downwardly biased on an *across-the-board basis* ... then I would expect to find all or nearly all results to show negative percent differences across benchmark comparisons on a consistent basis.”
- b. Once again, Dr. Cantor could have used a direct inquiry – looking at the representativeness of the Ingenix data and considering the impact of the data manipulation – but did not.
- c. Once again, Dr. Cantor uses questionable data for comparison and once again the comparisons establish no information about Ingenix bias.
- d. Once again Dr. Cantor finds instances where Ingenix values exceed comparison values (notwithstanding the problems with the comparisons described above) and draws conclusions from them that are not supported by the analysis.
- e. Dr. Cantor states “consistent with the frequency analysis, this evidence reinforces the finding that many members of the proposed classes have actually benefitted from the use of the Ingenix databases to determine UCR in Plaintiffs’ ‘but for’ world.” This is specifically not shown by Dr. Cantor’s analysis. Some (or all) class members may have benefitted from the fact that Defendants did not try to use Medicare average billed charge by Carrier region to establish UCR. The results are not inconsistent with the conclusion that Plaintiffs may have benefitted even more if the Ingenix data were representative of all private commercial (not Medicare) claims, if they had not been processed using high low screens and derived data, if appropriate geographic areas had been used and if appropriate consideration for training and experience had been used. Once again Dr. Cantor’s conclusion is unrelated to the results.
- f. Specifically, the Ingenix average is 10% to 13% higher than the Medicare average for the “matched pairs” (after “mapping” geozips into Medicare Carrier regions). This finding is consistent with a claim that Ingenix average billed charge is higher



than Medicare billed charge. It says nothing about Ingenix bias. Indeed, “but for” negative bias in data collection or processing the difference may be much higher.

- g. Ingenix 80<sup>th</sup> percentile is lower than the MAG high value on average but the 90<sup>th</sup> percentile Ingenix is higher than the MAG high value. So – the MAG high value falls somewhere between the Ingenix 80<sup>th</sup> and 90<sup>th</sup> percentiles, perhaps. Average values for NDAS and PFR show Ingenix lower for dental and slightly lower for medical and surgical CPTs.

77. The final section of Dr. Cantor’s report uses the comparison data to consider “all counties in the state” on the basis that “the [NYAG] analysis apparently did not consider existing commercial and government databases as sources of benchmark values.” Contrary to Dr. Cantor’s assertion, the NYAG investigation did consider use of PFR and Medicare Carrier 5% files for comparisons (not benchmarks) but rejected them due to obvious problems, inconsistencies and lack of comparability. Rather, the NYAG elected to subpoena data from all New York insurers, first for five New York counties as a preliminary investigation and then, for all of New York.

- a. Compared with the NYAG comparison which was based on the universe of all physician claims for five counties in New York, Dr. Cantor’s comparison uses data that represents a smaller and unknown subset (Ingenix, PFR and NDAS) or aggregated national data with a geographic multiplier (MAG and PMIC) and average aggregate data from Medicare carrier regions (PSPS).
- b. The reason for selecting five New York counties was to conduct a preliminary investigation of Ingenix billed charge percentiles to see if allegations of problems had any merit. The results of the preliminary investigation were reported by the NYAG. The NYAG then issued a subpoena for all counties in New York. Settlement intervened to shorten the subsequent analysis. A complete analysis would compare the Ingenix percentiles with the same percentiles for all billed charges for all of New York.
- c. Dr. Cantor complains that the NYAG study was conducted with data that are not public. Health insurers (including Defendants) demanded that the data be produced to the NYAG confidentially. If the health insurers wish to make the New York data public it is doubtful that the NYAG would object. It would provide an effective comparison.

- d. If Dr. Cantor wishes to conduct a scientific comparison in New York she could ask all of the New York health insurers to contribute the same data to her as were contributed to the NYAG or, better yet, all of their data for all CPTs in all counties. She could then compare the percentile values for the universe of all contributed claims to the Ingenix PHCS and MDR values. That study would have meaning.

78. By using datasets that produce values lower than Ingenix nationally, Dr. Cantor foreordained the results for the New York portion of her analysis. Contrary to Dr. Cantor's assertion, her New York analysis does not disprove or undercut the findings of the NYAG study at all. It merely shows that the numbers produced by the comparative data in New York are consistent with the numbers produced in the rest of the nation. The NYAG results are fully replicable. There is every reason to believe they will hold for all of New York beyond the five counties. Dr. Cantor could test this. The analysis summarized in her report does not.

D. Dr. Joskow

79. The crux of Dr. Joskow's conclusions is that (i) UCRs differ from one geozip/cpt combination to another so there can be no common class-wide impact on Plaintiffs and (ii) Plaintiffs' damages differ at an individual level so that there is no common class impact. As noted above, both mistake the meaning of "common impact" that, taken to their logical conclusion, suggest that it would never be appropriate to bring a class action to remedy a wrong perpetrated in a formulaic manner such as Defendants' percentile UCR process.

80. Professor Dr. analysis suggests, for example, that a class action would never be appropriate where a Defendant cheated all consumers by \$10 each so long as the prices it charged differed from consumer to consumer, perhaps in different geographic regions. In truth, if Aetna is contractually committed to paying UCR, improper calculation of UCR impacted (and continues to impact) all subscribers whose claims were adjudicated using improper UCR approaches.

81. For the second proposition, Dr. Joskow's conclusions assume that appropriately computed billed charge percentile limits provided by Ingenix and used by Aetna in fact reflect UCR. The percentile limits were developed by Ingenix and applied by Aetna using a number of "ad hoc rules." Again, the application of the formulas impacted all class members – their claims were adjudicated using the formulas. Of course, specific results from the application of the common process would be expected to have differed. Individual payment outcomes based on application of the formula clearly differed

among class members. But this is not individual impact in the sense used for class certification.

82. Taking this approach to its logical conclusion, a firm's fraudulent retention of 5% of every claim submitted to it could not be pursued in a class action where claims differ in amount since the amount of damages would differ.

83. So, what does this all of this mean? Consideration of and weighing of common issues and individual issues are required. Predominance of class wide issues is required. Efficiency also plays a role as well. Professor Joskow's report does not consider predominance or efficiency.

84. Dr. Joskow's report concludes that:

- The impact of use of the database to reimburse out of network services cannot be determined using common proof.
- Database flaws do not represent proof of injury to all members.
- Computation flaws and flaws from data submission cannot be used to show class-wide impact.
- The appropriate UCR that would prevail absent database flaws is indeterminate without individualized analysis.
- The indeterminacy of UCR holds for analysis common procedures, less common procedures, different geographic areas, different time periods, and specialty.
- For each class member, the appropriate UCR rate could be lower, higher, or the same as the Ingenix-based UCR.
- It cannot be determined, except through the analysis of claims data for each individual procedure, geographic area, and time period, how Aetna's profiling rules for data contribution affect UCR.
- Simulation of the use of Aetna's 150% and 50% profiling rules applicable to manually adjudicated claims shows such that the 80th percentile value of the percentile distributions could have increased, decreased, or stayed the same.
- A formulaic measure cannot provide a reliable estimate of damages. The estimation of damages also requires individualized analysis.
- The impact of the misconduct on out-of-pocket expenses is dependent on each individual member's plan specifications.

85. Professor Joskow concludes that the impact of the use of Ingenix to reimburse out of network services cannot be determined using common proof. “Because the effect of correcting for the alleged flaws of the Ingenix database varies within and across class members and because the effect varies depending on which of the factors one considers, individualized inquiry is required to determine whether a class member was insured as a result of Aetna’s use of the Ingenix database.”
86. As with Prof. Slottje and Dr. Cantor, this conclusion applies improper standards and questionable logic. Much of the argument presumes that if a payment mechanism injures some consumers and rewards others it can escape class action scrutiny based on “lack of common impact.” Or, “there can never be a class action where Defendants’ damages differ.”
87. Dr. Joskow’s first analysis considers a hypothetical where two zip codes are combined to show that an 80<sup>th</sup> percentile calculation for the combined groups will benefit consumers in one zip code while injuring those in the other. Dr. Joskow assumes standard normal distribution for his analysis.<sup>30</sup> He shows that the “actual” 80<sup>th</sup> percentile for one group is lower than the pooled 80<sup>th</sup> percentile while the “actual” 80<sup>th</sup> percentile for the other group is higher.
88. Dr. Joskow then hand picks a group of 16,137 “similar” claim lines to an Aetna POS plan member who went to see an OON provider in Jersey City in May 2008 for an office visit. He evaluates them in groups relating to the same provider zip code, the same provider type, the same provider specialty and the same place of service. Dr. Joskow notes that the 80<sup>th</sup> percentile for similar claimants (with the same provider zip code, provider type and provider specialty) for this group was \$120. The claims for this area are lower than Ingenix 80<sup>th</sup> which was \$132 for this geozip. There are 15 permutations for these four categories. Dr. Joskow evaluates each, finds that four variations in a but for world with higher levels of segmentaion provide higher payment for this group, five show a lower UCR rate, and six show an equal UCR rate.
- a. The results shown by Dr. Joskow merely describe the fundamental nature of the formulaic UCR process when zip codes or CPT codes or specialty are combined.
  - b. A statistically oriented payment system will have an “error rate.” What Dr. Joskow has shown is that the error rate here for the 15 combinations was 60%. A proper “intervention” statistically will be sensitive (it will identify the appropriate

---

<sup>30</sup> In fact, medical claims are skewed right. Indeed, Dr. Joskow notes when he evaluates 16,137 “similar” claim lines that the distribution “has a long right tail.”

“offender” - a true positive) and it will be specific (true negatives – guilty offenders do not go free).

- c. Dr. Joskow notes that for the combined characteristics – provider zip, specialty, type and place of service – combining claim data at the geozip level rewards patients and providers in Jersey City because a zip code geographic designation would have resulted in reduction of some of the claims that were paid in full.
  - d. What Dr. Joskow does not discuss is that – if the Ingenix 80<sup>th</sup> percentile is fair and accurate – there must be another group in another geozip who were in fact reimbursed less than should have been if the percentiles had been calculated at the zip code level rather than the geozip.
  - e. In this sense, the error rate of the system is nearly 100%: consumers in some areas are underpaid and consumers in others are overpaid.<sup>31</sup> The system is neither sensitive nor specific: bills in areas with low billed charges may be unreasonable but are reimbursed anyhow because the 80<sup>th</sup> percentile is fixed unfairly high (“the guilty go free”), and bills in areas with high charges are reduced even though they are reasonable (“the innocent are found guilty”).
  - f. As a result, the Joskow argument does not establish lack of common impact. To the contrary, it illustrates clearly the problems with the payment system.
  - g. Moreover, if “on the whole” the Ingenix 80<sup>th</sup> percentiles are biased downward – something that any of Defendants experts could have empirically considered and did not – there would be more “penalties” than “rewards” so that on the whole Defendants benefitted by rewarding some and penalizing others.
  - h. More important, by sanctioning a statistical scheme that creates winners and losers Dr. Joskow would allow Defendants to hide behind the winners in order to escape responsibility for the losers.
89. Dr. Joskow concludes from his observations that “segregation” of data by characteristics will produce winners and losers in each instance so that “it may be inappropriate to segregate the data by one or more of those characteristics to determine the ‘comparable’ charges.” By this Dr. Joskow appears to be arguing for maintenance of a system that creates winners and losers in a way that inappropriately rewards health insurers because it would be “inappropriate” to correctly and properly identify, separate and deal with claims that should not have been reimbursed but were, from claims that

---

<sup>31</sup> Since there will be very few precisely at the mean of the 80<sup>th</sup> percentile.

were not reimbursed but should have been. Dr. Joskow is telling consumers whose claims were underpaid, “Don’t worry, we overpaid somebody else.”

90. None of Defendants’ experts discusses the fact that the UCR payment system has set up a lottery with a negative expected value outcome for consumers. They assume that the potential “winners” will want to keep the system and that the “losers” will want it changed so that the difference translates into “lack of common impact” among Plaintiffs. This ignores human nature and the fundamental nature of and value of insurance. We buy insurance because we are risk averse and prefer outcomes with certainty rather than risk the outcomes of a gamble, even when the odds are fair.

91. Even if the Ingenix percentiles were not biased downward despite the evidence that indicates that they are, the vast majority of consumers would elect to be reimbursed correctly for certain rather than enter into a lottery where half the time they would be under reimbursed and half the time they would be over reimbursed. If you add that sometimes they would win and sometimes they would lose but on balance they would lose, their answer would be clear: “no gamble.”

E. Common proof of damages – class wide

92. Dr. Joskow concludes: “Plaintiffs’ contention that the appropriate UCR rate for a claim should be based on a distribution of “comparable charges” undermines the claim that there is a common proof or similar methodology that could be used to show injury to all members of the purported class. In fact, given the numerous possible alternative methods of correcting for the flaws alleged by Plaintiffs, there is no systematic way of determining which class members were in fact insured and how much the damages would be, if any.”<sup>32</sup>

- Defendants implemented a common scheme, a common methodology.
- Defendants subjected all of Plaintiffs to that methodology.
- Dr. Joskow appears to contend that it is not possible for that methodology to be “fixed” or reverse engineered in order to determine damages class wide for all Plaintiffs.

---

<sup>32</sup>Joskow Report at p. 10.

- There do not have to be “numerous possible alternative methods of correcting for the flaws.” All that has to be done is to implement the process that Ingenix purported to implement.<sup>33</sup>

93. As noted in my report, there are two damage approaches that are common to all Plaintiffs, address the issue of damages class wide and use data maintained by Defendants and other health insurers.<sup>34</sup> An illustrative example shows how this can be accomplished.<sup>35</sup>

94. First, if it is determined that billed percentiles by CPT by geozip cannot adequately describe UCR, or if there are not enough billed charge data to produce percentile values with any reasonable degree of statistical confidence<sup>36</sup> there will be no sound way to establish UCR so that billed charges would be the proper basis for payment.

- Defendants’ data contains values for billed charges, allowed charges (the amount that Defendant “allows” for payment and reductions such as deductibles, copayments, coinsurance coordination of benefits and the percentage of out of network charges that are paid “(Reductions). This information permits calculation of what would have been paid or should have been paid if the required payment was based on billed charges.
- In order to illustrate how damages could be calculated when no UCR calculation is appropriate such that billed charge should have been paid we selected actual claims submitted by Aetna for 2007 from its ACAS PPO medical data for two CPT code procedures for which there were less than 3600 claims nationally during 2007 - or fewer than 10 claims per geozip: CPT code 92100 relating to glaucoma testing and CPT code 11423 for excision of benign tumors of the neck. We extracted claims for these CPT codes for July 2007. The SAS code for the identification and extraction contained in Exhibit A.

---

<sup>33</sup> This would not embody damages flowing from lack of representativeness, although it would be possible to design a survey to identify damages attributable to it. Also, it would not correct for training, experience and specialty. A multiplier could be developed that would provide for an appropriate correction.

<sup>34</sup> The most effective would be to obtain data from all health insurers to establish fair and accurate percentiles. To the extent that any single insurer did not contribute data the statistical significance of the percentile values would be reduced. The effect of the reduction would require a case by case analysis. Obviously, the fewer the contributors the lower the confidence in the percentile values. If percentile values cannot be developed with confidence then billed charges should be used to calculate damages.

<sup>35</sup> The illustration will be further refined and tested before it is implemented.

<sup>36</sup> Ingenix computes percentiles with ten or more observations. This is not based on sound statistical principles. A power analysis that seeks to find a percentile value within five percentage points of the next higher or lower value with a 95% degree of confidence will need many more than ten observations.

- We eliminated procedures with modifiers and those with no coinsurance on the basis that they were presumptively “in network.” We retained only claims where billed charge exceeded allowed charge. Exhibit A contains the claim lines for the 158 claims that were extracted and retained.
- The illustrative damage calculation is shown in Exhibit A. Billed charge is set forth in the column labeled “Charge” and the allowed amount in the column labeled “Allow.” Deductibles, copayments and coinsurance are shown in the columns labeled “Deduct, Copay and Coins.” Since deductible is less than allowed the analysis assumes that the deductible has been met for these claimants.<sup>37</sup>
- The amount of damage before coinsurance is established as billed charge less allowed since the full amount of the billed charge should have been paid but for application of an allowed amount for which there is no UCR that is available. This is shown in the column labeled “Ch\_Allow.”
- We calculate the coinsurance amount in the column labeled “Coins Pct” determined by dividing the coinsurance actually paid by the difference<sup>3</sup> between the allowed and the deductible.
- We calculate damage as billed charge less allowed multiplied by the percentage that defendant paid (one less the coinsurance percentage). The damage amount for the claim is set forth in the column labeled “Damage.”
- The calculation shown by this illustration can be coded into a computer program and applied class wide. There are no individualized issues that apply. The data necessary for the calculation are maintained by defendant.
- The illustration shows that damage computations can be made class wide using Defendants’ data for those instances where UCR cannot be established accurately using billed charge data on the basis that the proper way to pay OON is billed charge. In this instance damage computations do not involve any “individualistic” determinations. The information needed to make the computations is in the possession of Defendant.

95. Second, if it is appropriate to use percentile data for UCR it is possible (indeed necessary) to fix or “reverse engineer” the health insurer data to produce fair and

---

<sup>37</sup> Defendants’ data will permit confirmation of this assumption.



accurate percentile tables. The fair and accurate percentiles can then be reinserted into the claims data lines to measure damages.

- In order to illustrate this we computed a fair and accurate 80<sup>th</sup> percentile for the 20 CPT code / geozip combinations used by Prof. Slottje using the ACAS PPO data for 2008 - to develop 80<sup>th</sup> percentile levels that “should” have been allowed (“Should Allow”) rather than the Ingenix 80<sup>th</sup> percentile levels which were actually used (Allowed).<sup>38</sup> The SQL queries used to generate the new 80<sup>th</sup> percentiles are included in Exhibit B.<sup>39</sup>
- We then took a sample of 100 claims from Aetna ACAS PPO data for 2008 for intermediate office visits (CPT 99213) in Fort Worth (geozip 760) for which billed charges exceeded allowed amounts that were adjudicated using Ingenix data (HIAA80th). Exhibit B contains the truncated claim lines for these claims and the SQL queries used to extract them. There were five claims that involved modifiers that were eliminated.
- The claim lines come from defendants’ data. The first column contains the billed charge. The second shows the amount “allowed” by defendant based on the Ingenix 80<sup>th</sup> percentile of \$100, although this is not the case for every claim. The third column; labeled “Should Allow” is the 80<sup>th</sup> percentile of Aetna’s claims for 2008 (\$105), the amount that Aetna’s data establish are accurate for these data for intermediate office visits in Fort Worth. The fourth column is the deductible, the fifth column is the copayment amount, the sixth column is the coinsurance amount (which we assumed was a specified percentage of the claim). The seventh column labeled COB represents coordination of benefits amounts. The eighth column was the amount that Aetna paid. The ninth column is our verification of what was paid: From actual allowed using Ingenix percentiles we subtracted the deductible, the copayment, the co-insurance and the coordination of benefit amount in order to verify the payment logic. There were instances where actual payment differed from expected. These lines indicate that the deductible or the coinsurance was waived.
- We then computed what should have been paid if accurate 80<sup>th</sup> percentile data had been used. From “Should Allow” we subtracted the deductible, the copayment, the recomputed coinsurance amount (the same percentage found in the previous step

<sup>38</sup> This is not to conclude that the geozip is an appropriate geographic area for UCR. It is merely to illustrate how damages may be calculated class wide. Refined percentile values can be produced that more accurately reflect geography. Once again, I relied on Mr. Cohen’s assistance for statistical work.

<sup>39</sup> I relied on Mr. Frank Cohen, a senior statistician with substantial experience for this work and other background work relating to damages.

multiplied by the Should Allow amount) and the coordination of benefits amount. Where the deductibles or coinsurance were waived we calculated the Should Pay amount as the difference between what should have been allowed (Should Allow) and what was allowed (Allow).

- The damage calculation then follows in two steps. First, we estimated damages as what should have been paid (Should Pay) less what was paid (Paid). We then corrected for deductible and copayment waiver by using the entire Should Pay amount for these claims as the amount of damage on the presumption that if Aetna wished to waive them they would have wished to pay the entire amount that should have been allowed.
- The column labeled “Damage” is the damage computation that results from substituting a corrected 80<sup>th</sup> percentile amount for the 80<sup>th</sup> percentile amount that was used.
- This calculation provides a basic correction or “fix” for the Ingenix procedures used. It accepts the billed charge percentile as the basis for UCR and does not correct for data contribution bias and does not adjust for geography, specialty, type or place of service. Workable adjustments for those factors can be developed scientifically and applied.
- The illustrative data are taken from Aetna ACAS data. They can be broadened to incorporate data from more health insurers – or it they can be computed using Aetna data.<sup>40</sup>

96. These illustrative damage calculations are made at the claim line level. They are not formulaic although they correct problems in a formulaic system. When the damage calculation algorithm is finalized it can be applied to all of Defendant’s past claims using a limited number of data runs. The person or entity shown as payee in the data can be paid the damages accurately and efficiently. No “individual” legal or factual issues are involved.

#### F. Conclusion

97. Defendants’ experts have conducted a number of analyses using a range of comparative data. They evaluate claims from individual Plaintiffs to attempt to show that the issues here involve individual rather than class wide inquiry. They conclude

---

<sup>40</sup> To the extent that more data can be included more CPT / geographic combinations can be developed with statistical confidence.

that these comparisons establish that the Ingenix percentiles were not biased downward and that because different Plaintiffs suffered different damage there was no common impact so that there can be no class certification.

98. The comparisons and the individual analyses do not establish the absence of downward bias in the Ingenix percentiles and do not show that individual issues predominate over class wide issues here.
99. Defendants experts do not address or attempt to justify the lack of representativeness of the Ingenix data, the High Low screen, the pre scrubbing of data, the use of derived values for UCR, the use of the geozip as geographic market surrogate or the failures of the percentile approach to address training, experience and specialty of provider. They could have used direct analysis to see if the Ingenix data were biased downward but did not do so.
100. Defendants experts assume that unequal injury automatically translates into lack of common impact. Most of the questions in the case involve common class wide questions. There are no individual issues. Defendants engaged in a common scheme to reimburse UCR using billed charge percentile data. Computation of the billed charges was made with known problems. The impact of these problems was class wide and common to all Plaintiffs.
101. Defendants say that it is not possible to calculate damages on a class wide basis, that damage calculation involves individual determinations. My illustration shows that it is possible to calculate damages class wide either by using billed charges or by fixing the Ingenix billed charge percentiles. Defendants' data affords the ability to do this directly. Supplementing Defendants' data with data from other health insurers would improve confidence in the billed charge percentiles but the calculation can be made with or without it.
102. In my prior report I concluded that it is possible to calculate Plaintiffs' damages and that Defendants' UCR process produced common impact class wide. Nothing contained in the reports from Defendants' experts has changed that opinion.



---

Stephen Foreman, PhD, JD, MPA

May 1, 2010



Exhibit A  
Damage Calculation Where UCR Cannot Be Established

CPT	Charge	Allow	Deduct	Copay	Coins	Paid	Ch_Allow	Coins pct	Damage
92100	158.00	118.50	113.25	-	1.05	4.20	39.50	0.20	31.60
92100	130.76	9.00	-	-	1.80	7.20	121.76	0.20	97.41
92100	65.00	13.00	-	-	2.60	10.40	52.00	0.20	41.60
92100	85.00	15.19	-	-	3.04	12.15	69.81	0.20	55.84
92100	125.00	15.92	-	-	3.18	12.74	109.08	0.20	87.29
92100	130.00	16.52	-	-	3.30	13.22	113.48	0.20	90.81
92100	100.00	16.83	-	-	3.37	13.46	83.17	0.20	66.52
92100	90.00	17.00	-	-	3.40	13.60	73.00	0.20	58.40
92100	94.00	17.92	-	-	3.58	14.34	76.08	0.20	60.88
92100	96.16	18.36	-	-	3.67	14.69	77.80	0.20	62.25
92100	96.16	18.36	-	-	3.67	14.69	77.80	0.20	62.25
92100	120.00	19.35	-	-	3.87	15.48	100.65	0.20	80.52
92100	98.00	20.00	-	-	4.00	16.00	78.00	0.20	62.40
92100	96.16	26.47	-	-	5.29	21.18	69.69	0.20	55.76
92100	85.00	65.03	-	-	6.50	58.53	19.97	0.10	17.97
92100	95.00	69.54	-	-	6.95	62.59	25.46	0.10	22.92
92100	125.00	38.86	-	-	7.77	31.09	86.14	0.20	68.92
92100	100.00	79.58	-	-	7.96	71.62	20.42	0.10	18.38
92100	100.00	79.58	-	-	7.96	71.62	20.42	0.10	18.38
92100	100.00	81.77	-	-	8.18	73.59	18.23	0.10	16.41
92100	49.00	43.49	-	-	8.70	34.79	5.51	0.20	4.41
92100	100.00	89.26	-	-	8.93	80.33	10.74	0.10	9.67
92100	135.00	89.26	-	-	8.93	80.33	45.74	0.10	41.16
92100	96.16	50.05	-	-	10.01	40.04	46.11	0.20	36.89
92100	85.00	52.46	-	-	10.49	41.97	32.54	0.20	26.03
92100	100.00	54.00	-	-	10.80	43.20	46.00	0.20	36.80
92100	79.00	55.75	-	-	11.15	44.60	23.25	0.20	18.60
92100	104.15	71.07	-	-	14.21	56.86	33.08	0.20	26.47
92100	80.00	75.95	-	-	15.19	60.76	4.05	0.20	3.24
92100	155.00	79.58	-	-	15.92	63.66	75.42	0.20	60.33
92100	95.00	89.26	-	-	17.85	71.41	5.74	0.20	4.59
92100	193.00	89.44	-	-	17.89	71.55	103.56	0.20	82.85
92100	175.00	91.82	-	-	18.36	73.46	83.18	0.20	66.55
92100	180.00	100.00	-	-	20.00	80.00	80.00	0.20	64.00
92100	133.00	69.54	-	-	20.86	48.68	63.46	0.30	44.42
92100	110.00	75.00	-	-	22.50	52.50	35.00	0.30	24.50
92100	180.00	127.44	-	-	25.49	101.95	52.56	0.20	42.05
92100	180.00	127.44	-	-	25.49	101.95	52.56	0.20	42.05
92100	299.00	198.76	-	-	39.75	159.01	100.24	0.20	80.19
11423	260.00	239.83	229.75	-	1.01	9.07	20.17	0.10	18.15
11423	277.00	209.06	191.90	-	3.43	13.73	67.94	0.20	54.36
11423	410.00	42.24	-	-	4.22	38.02	367.76	0.10	331.02
11423	250.00	46.34	-	-	4.63	41.71	203.66	0.10	183.31
11423	389.00	25.94	-	-	5.19	20.75	363.06	0.20	290.42
11423	250.00	92.67	40.64	-	5.20	46.83	157.33	0.10	141.61
11423	263.00	168.66	141.32	-	5.47	21.87	94.34	0.20	75.47
11423	355.00	256.63	227.83	-	5.76	23.04	98.37	0.20	78.70
11423	250.00	43.52	-	-	6.53	36.99	206.48	0.15	175.50
11423	300.00	35.82	-	-	7.16	28.66	264.18	0.20	211.37
11423	475.00	36.37	-	-	7.27	29.10	438.63	0.20	350.95
11423	300.00	72.83	-	-	7.28	65.55	227.17	0.10	204.46
11423	600.00	127.07	89.41	-	7.53	30.13	472.93	0.20	378.37
11423	326.00	259.34	183.44	-	7.59	68.31	66.66	0.10	59.99
11423	260.00	86.34	-	-	8.63	77.71	173.66	0.10	156.30
11423	459.00	385.56	338.12	-	9.49	37.95	73.44	0.20	58.75
11423	324.00	265.00	163.14	-	10.19	91.67	59.00	0.10	53.10
11423	190.08	97.56	45.04	-	10.50	42.02	92.52	0.20	74.02
11423	320.00	121.98	-	-	12.20	109.78	198.02	0.10	178.21
11423	449.00	122.61	-	-	12.26	110.35	326.39	0.10	293.75
11423	394.00	62.38	-	-	12.48	49.90	331.62	0.20	265.27
11423	294.00	126.84	-	-	12.68	114.16	167.16	0.10	150.45

11423	409.00	134.01	-	-	13.40	120.61	274.99	0.10	247.49
11423	350.00	67.42	-	-	13.48	53.94	282.58	0.20	226.08
11423	270.00	68.00	-	-	13.60	54.40	202.00	0.20	161.60
11423	290.50	136.21	-	-	13.62	122.59	154.29	0.10	138.86
11423	248.00	189.14	49.51	-	13.96	125.67	58.86	0.10	52.98
11423	334.00	143.26	-	-	14.33	128.93	190.74	0.10	171.66
11423	279.00	74.43	-	-	14.89	59.54	204.57	0.20	163.65
11423	300.00	154.10	-	-	15.41	138.69	145.90	0.10	131.31
11423	361.00	155.11	-	-	15.51	139.60	205.89	0.10	185.30
11423	715.00	164.53	-	-	16.45	148.08	550.47	0.10	495.43
11423	495.10	164.75	-	-	16.48	148.27	330.35	0.10	297.30
11423	400.00	165.55	-	-	16.56	148.99	234.45	0.10	211.00
11423	430.00	171.54	-	-	17.15	154.39	258.46	0.10	232.62
11423	425.00	93.38	7.39	-	17.20	68.79	331.62	0.20	265.29
11423	325.00	174.39	-	-	17.44	156.95	150.61	0.10	135.55
11423	280.00	87.58	-	-	17.52	70.06	192.42	0.20	153.93
11423	245.00	87.58	-	-	17.52	70.06	157.42	0.20	125.93
11423	384.00	362.00	272.00	-	18.00	72.00	22.00	0.20	17.60
11423	1,147.45	181.00	-	-	18.10	162.90	966.45	0.10	869.81
11423	325.00	163.77	40.41	-	18.50	104.86	161.23	0.15	137.05
11423	386.00	185.34	-	-	18.53	166.81	200.66	0.10	180.60
11423	250.00	185.34	-	-	18.53	166.81	64.66	0.10	58.20
11423	419.00	192.66	-	-	19.27	173.39	226.34	0.10	203.70
11423	749.00	202.75	-	-	20.28	182.47	546.25	0.10	491.61
11423	671.00	106.74	-	-	21.35	85.39	564.26	0.20	451.40
11423	350.00	148.32	-	-	22.25	126.07	201.68	0.15	171.43
11423	290.00	243.00	-	-	24.30	218.70	47.00	0.10	42.30
11423	346.00	241.39	119.84	-	24.31	97.24	104.61	0.20	83.69
11423	433.40	257.00	-	-	25.70	231.30	176.40	0.10	158.76
11423	345.00	130.04	-	-	26.01	130.04	214.96	0.20	171.96
11423	290.00	263.03	-	-	26.30	236.73	26.97	0.10	24.27
11423	200.00	134.84	-	-	26.97	107.87	65.16	0.20	52.13
11423	248.00	189.14	49.51	-	27.93	111.70	58.86	0.20	47.09
11423	429.00	144.64	-	-	28.93	115.71	284.36	0.20	227.48
11423	328.00	145.37	-	-	29.07	116.30	182.63	0.20	146.11
11423	635.00	156.40	-	-	31.28	125.12	478.60	0.20	382.88
11423	180.00	162.00	-	-	32.40	129.60	18.00	0.20	14.40
11423	334.00	217.93	-	-	32.69	185.24	116.07	0.15	98.66
11423	344.00	164.98	-	-	33.00	131.98	179.02	0.20	143.21
11423	352.00	187.06	-	-	37.41	149.65	164.94	0.20	131.95
11423	280.00	137.11	-	-	41.13	95.98	142.89	0.30	100.03
11423	2,579.00	413.00	-	-	41.30	371.70	2,166.00	0.10	1,949.40
11423	430.00	209.16	-	-	41.83	167.33	220.84	0.20	176.67
11423	378.00	209.35	-	-	41.87	167.48	168.65	0.20	134.92
11423	3,870.35	212.50	-	-	42.50	170.00	3,657.85	0.20	2,926.28
11423	1,166.42	429.63	-	-	42.96	386.67	736.79	0.10	663.12
11423	482.55	245.28	-	-	49.06	196.22	237.27	0.20	189.81
11423	511.00	383.25	103.34	-	55.98	223.93	127.75	0.20	102.20
11423	400.00	377.49	-	-	56.62	320.87	22.51	0.15	19.13
11423	2,743.10	594.00	-	-	59.40	534.60	2,149.10	0.10	1,934.19
11423	2,428.92	1,226.00	-	-	61.30	1,164.70	1,202.92	0.05	1,142.77
11423	1,174.00	767.00	109.37	-	65.76	591.87	407.00	0.10	366.30
11423	3,414.00	671.00	-	-	67.10	603.90	2,743.00	0.10	2,468.70
11423	1,116.00	678.00	-	-	67.80	610.20	438.00	0.10	394.20
11423	1,836.00	1,046.00	500.00	150.00	79.20	316.80	790.00	0.15	675.41
11423	1,174.00	797.00	-	-	79.70	717.30	377.00	0.10	339.30
11423	692.00	565.36	-	-	84.80	480.56	126.64	0.15	107.64
11423	2,850.00	608.00	-	-	91.20	516.80	2,242.00	0.15	1,905.70
11423	4,506.00	523.00	-	-	104.60	418.40	3,983.00	0.20	3,186.40
11423	2,140.00	652.00	-	-	130.40	521.60	1,488.00	0.20	1,190.40
11423	2,391.00	914.62	262.22	-	130.48	521.92	1,476.38	0.20	1,181.10
11423	1,133.00	929.06	-	-	139.36	789.70	203.94	0.15	173.35
11423	1,508.00	1,447.68	-	-	144.77	1,302.91	60.32	0.10	54.29
11423	1,969.70	1,634.85	-	-	163.49	1,471.36	334.85	0.10	301.36
11423	3,825.00	998.00	-	-	199.60	798.40	2,827.00	0.20	2,261.60
11423	4,506.00	2,500.00	-	75.00	242.50	2,182.50	2,006.00	0.10	1,811.42

11423	4,950.00	2,346.78	-	-	352.02	1,994.76	2,603.22	0.15	2,212.73
11423	3,780.00	3,489.46	100.00	-	1,016.84	2,372.62	290.54	0.30	203.38

## SAS Extraction Code

```

Data MED_2007_01;
infile 'f:/ACAS_MED_2007_01.TXT' DLM='|' lrecl=462 ;
input
CLAIMID $
CLGEN $
PREFIX $
LINENO
PRSSN $
PRSUF $
SPECIALTY $
HfMMDD
HTOMMDD
HPAYEE $
MOD1 $
MOD2 $
MOD3 $
COINS1
COINS2
RATING $
GEOZIP $
CLSEPOS1 $
CLSEPOS2 $
ORIGPOS $
CLHIPID $
CLHCHG
BILLED
ADMALWAM $
DEDUCT1
DEDUCT2
COPAY1
COPAY2
REASCUST $
ALLOW1 $
ALLOW2
ADMIN $
HCENTER $
PAID1 $
PAID2
SAVEAMT $
COORD1 $
COORD2 $
PAYMTYPE $
PRFCMPIND $
LINETYPE $
SUBTYPE $
EXPLAIN $
REASCODE $
HLTHREL $
HPFIND $
CONSIDER $
ALTPRIC $
ALTSOURCE $
HCALLOW1 $
HCALLOW2 $
NDCCODE $
PAID $
PANAME $
SYSID $
BIC $
ROLUPN $
CONTROL $
CONTNS1 $
CONTNS2 $
CPMTMS3 $
CONTNS4 $
CONTNS5 $
CPMTMS6 $
CONTNS7 $

```



CONTNS8 \$  
 CPMTMS9 \$  
 CONTNS10 \$  
 CONTNS11 \$  
 DELIM1 \$  
 DELIM2 \$  
 DELIM3 \$  
 DELIM4 \$  
 DELIM5 \$  
 DELIM6 \$  
 DELIM7 \$  
 DELIM8 \$  
 DELIM9 \$  
 DELIM10 \$  
 DELIM11 \$  
 REMIT \$  
 DSAMT \$  
 ACTPRICE \$  
 WITHHOLD \$  
 RTSRC \$  
 OUTLIER \$  
 PRICER \$ ;

DATA MED\_2007\_01A;  
 MERGE MED2007\_01  
 (DROP=  
 CLGEN  
 PREFIX  
 PRSSN  
 PRSUF  
 HfMMDD  
 HTOMMDD  
 HPAYEE  
 RATING  
 GEOZIP  
 CLSEPOS1  
 CLSEPOS2  
 ORIGPOS  
 REASCUST  
 HCENTER  
 SAVEAMT  
 PAYMTYPE  
 PRFCMPIND  
 LINETYPE  
 SUBTYPE  
 EXPLAIN  
 REASCODE  
 HLTHREL  
 HPFIND  
 CONSIDER  
 ALTPRIC  
 ALTSOURCE  
 HCALLOW1  
 HCALLOW2  
 NDCCODE  
 PAID  
 PANAME  
 SYSID  
 BIC  
 ROLUPN  
 CONTROL  
 CONTNS1  
 CONTNS2  
 CPMTMS3  
 CONTNS4  
 CONTNS5  
 CPMTMS6  
 CONTNS7  
 CONTNS8  
 CPMTMS9  
 CONTNS10

```
CONTNS11
DELIM1
DELIM2
DELIM3
DELIM4
DELIM5
DELIM6
DELIM7
DELIM8
DELIM9
DELIM10
DELIM11
REMIT
DSAMT
ACTPRICE
WITHHOLD
RTSRC
OUTLIER
PRICER
coins1
billed
admalwam
deduct1
copay1
allow1
admin
paid1
coord1
);
```

```
xxx=0;
if CLHIPID=92100 THEN XXX=1;
if CLHIPID=11423 THEN XXX=1;
IF XXX=0 THEN DELETE;
```

```
IF CLHCHG=0 THEN DELETE;
IF ALLOW2=0 THEN DELETE;
IF ALLOW2-CLHCHG>1 THEN DELETE;
```

```
IF MOD1 NE ' ' THEN DELETE;
```

```
RUN;
```

Exhibit B  
Example of Damage Calculation  
CPT 99213 Intermediate Office Visit Existing Patient – Geozip 760 Forth Worth

Charge	Allowed	Should Allow	Deduct	Co-Pay	Co-Insur	COB	Paid	Verify	Pd Diff	New Insur	Should Pay	Est Damage	Damage
150.00	100	105	0	0	75	0	25.00	25.00	-	78.75	26.25	1.25	1.25
111.00	99	105	0	0	74.25	0	24.75	24.75	-	78.75	26.25	1.50	1.50
145.00	100	105	0	0	30	0	70.00	70.00	-	31.50	73.50	3.50	3.50
110.00	95	105	95	0	0	0	95.00	-	95.00	-	10.00	(85.00)	10.00
175.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
150.00	100	105	60	0	16	0	24.00	24.00	-	16.80	28.20	4.20	4.20
125.00	100	105	0	0	20	0	80.00	80.00	-	21.00	84.00	4.00	4.00
119.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
111.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
150.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
110.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
112.00	100	105	0	0	30	0	70.00	70.00	-	31.50	73.50	3.50	3.50
112.00	99	105	0	0	34.65	0	64.35	64.35	-	36.75	68.25	3.90	3.90
105.00	105	105	105	0	0	0	-	-	-	-	-	-	-
125.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
112.00	99	105	0	0	34.65	0	64.35	64.35	-	36.75	68.25	3.90	3.90
125.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
112.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
150.00	95	105	0	0	28.5	0	66.50	66.50	-	31.50	73.50	7.00	7.00
102.00	102	105	102	0	0	0	-	-	-	-	3.00	3.00	3.00
259.34	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
110.00	95	105	95	0	0	0	-	-	-	-	10.00	10.00	10.00
112.00	100	105	100	0	0	0	100.00	-	100.00	-	5.00	(95.00)	5.00
105.00	105	105	105	0	0	0	-	-	-	-	-	-	-
112.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
264.42	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
125.00	100	105	0	0	20	0	80.00	80.00	-	21.00	84.00	4.00	4.00
117.00	95	105	95	0	0	0	95.00	-	95.00	-	10.00	(85.00)	10.00
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
119.00	99	105	0	0	0	0	99.00	99.00	-	-	105.00	6.00	6.00
200.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
125.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
110.00	95	105	95	0	0	0	-	-	-	-	10.00	10.00	10.00
150.00	99	105	0	0	29.7	0	99.00	69.30	29.70	31.50	73.50	(25.50)	6.00
280.09	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
119.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
124.00	95	105	95	0	0	0	-	-	-	-	10.00	10.00	10.00
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
259.34	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
129.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
129.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
111.00	95	105	95	0	0	0	-	-	-	-	10.00	10.00	10.00
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
280.09	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
259.34	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
119.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
119.00	95	105	0	0	0	0	95.00	95.00	-	-	105.00	10.00	10.00
110.00	99	105	99	0	0	0	99.00	-	99.00	-	6.00	(93.00)	6.00
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00

119.00	99	105	0	0	29.7	0	69.30	69.30	-	31.50	73.50	4.20	4.20
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
150.00	100	105	0	0	0	0	100.00	100.00	-	-	105.00	5.00	5.00
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
116.00	99	105	0	0	74.25	0	24.75	24.75	-	78.75	26.25	1.50	1.50
129.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
150.00	99	105	0	0	29.7	0	69.30	69.30	-	31.50	73.50	4.20	4.20
150.00	99	105	0	0	0	0	99.00	99.00	-	-	105.00	6.00	6.00
113.00	100	105	100	0	0	0	100.00	-	100.00	-	5.00	(95.00)	5.00
104.00	104	105	104	0	0	0	-	-	-	-	1.00	1.00	1.00
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
119.00	99	105	26.48	0	21.76	0	50.76	50.76	-	23.08	55.44	4.68	4.68
117.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
110.00	99	105	99	0	0	0	99.00	-	99.00	-	6.00	(93.00)	6.00
150.00	99	105	0	0	0	0	99.00	99.00	-	-	105.00	6.00	6.00
111.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
175.00	99	105	0	0	39.6	0	59.40	59.40	-	42.00	63.00	3.60	3.60
119.00	99	105	99	0	0	0	99.00	-	99.00	-	6.00	(93.00)	6.00
119.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
125.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
150.00	99	105	0	0	0	0	99.00	99.00	-	-	105.00	6.00	6.00
125.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
200.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
120.00	99	105	0	0	74.25	0	24.75	24.75	-	78.75	26.25	1.50	1.50
129.00	99	105	99	0	0	0	99.00	-	99.00	-	6.00	(93.00)	6.00
178.00	100	105	0	0	30	0	70.00	70.00	-	31.50	73.50	3.50	3.50
150.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
125.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
119.00	99	105	0	0	0	0	99.00	99.00	-	-	105.00	6.00	6.00
125.00	100	105	100	0	0	0	100.00	-	100.00	-	5.00	(95.00)	5.00
104.00	99	105	93	0	4.5	0	1.50	1.50	-	4.77	7.23	5.73	5.73
105.00	105	105	105	0	0	0	-	-	-	-	-	-	-
150.00	99	105	0	0	74.25	0	24.75	24.75	-	78.75	26.25	1.50	1.50
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
150.00	99	105	0	0	0	0	99.00	99.00	-	-	105.00	6.00	6.00
125.00	100	105	100	0	0	0	100.00	-	100.00	-	5.00	(95.00)	5.00
150.00	100	105	0	0	0	0	100.00	100.00	-	-	105.00	5.00	5.00
129.00	99	105	0	0	39.6	0	59.40	59.40	-	42.00	63.00	3.60	3.60
115.00	100	105	100	0	0	0	-	-	-	-	5.00	5.00	5.00
150.00	99	105	0	0	0	0	99.00	99.00	-	-	105.00	6.00	6.00
111.00	95	105	95	0	0	0	-	-	-	-	10.00	10.00	10.00
119.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
116.00	99	105	99	0	0	0	-	-	-	-	6.00	6.00	6.00
119.00	95	105	95	0	0	0	-	-	-	-	10.00	10.00	10.00

## GeoZip percentiles from Aetna line items

---

This document provides an overview of the data and processes utilized to build the 80<sup>th</sup> percentile for an ingenix GeoZip from the Aetna claim line item details.

### Reference documents

Document	Description
Build GeoArea Percentiles.sql	SQL code to populate percentiles for pre-defined list of GeoZips and procedure codes.
CalculateGeoAreaMedicalFeeStatPercentile.sql	SQL code that calculates any percentile.
Create Aetna Database.sql	SQL definitions for tables, views and other objects

### Processing overview

A list of GeoZip / ProcedureCodes is entered into the table AetnaGeoFeeStatistics. The initial list is comprised of the following entries:

GeoZip	Procedure Code	Modifier Code
021	99213	
070	99213	
080	99213	
100	97110	
100	99213	
115	99213	
117	99213	
272	80053	
272	80061	
272	85025	
441	99213	
554	99213	
606	80053	
606	80061	
606	85025	
631	99213	
750	99213	
752	99213	
760	99213	
770	99213	

The code in Build GeoArea Percentiles.sql simply loops through these entries, calls the stored procedure CalculateGeoAreaMedicalFeeStatPercentile, and records the resulting percentile in AetnaGeoFeeStatistics.

CalculateGeoAreaMedicalFeeStatPercentile determines the requested percentile using MedicalProceduresForStatistics, which is a filtered view of the line items. The following filters are applied when retrieving line items for the view:

- LinelItem.ProcedureCode <> ' '
- LinelItem.Modifier1 IN ( ' ', '26', 'TC')
- LinelItem.SubmittedUnitCount > 0
- Claim.ProviderState <> ' '
- LinelItem.PlaceOfServiceCode IN ('11', '12', '22')

The view calculates a unit price by dividing LinelItem.SubmittedAmount by LinelItem.SubmittedUnitCount. This unit price is the basis used in the percentile calculation.

There are two possible sources of the Ingenix GeoZip code for a claim. The column GeoAreaCode is sometimes populated with a valid value. More commonly, the ProviderZipcode is populated and is used to lookup an entry in GeoAreaZipcodes, a table containing entries that map the three-digit zipcode to each Ingenix GeoZip area. If either of these methods provides the GeoZip area code that matches the requested value (from AetnaGeoFeeStatistics) then the MedicalProceduresForStatistics row is included in the percentile calculation.

```

/*
=====
Author:          Scott Buchanan
Created:   29-Apr-2010
Description: Calculates percentile for GeoArea+procedure+modifier
===== */
CREATE PROCEDURE [dbo].[CalculateGeoAreaMedicalFeeStatPercentile]

    @GeoArea      char(3),
    @ProcedureCode char(5),
    @ModifierCode  char(2),
    @Percentile    money,
    @Result        money    OUTPUT

AS
BEGIN
    -- SET NOCOUNT ON to prevent extra result sets from interfering with SELECT statements.
    SET NOCOUNT ON;

    SET ARITHABORT OFF;
    SET ARITHIGNORE OFF;
    SET ANSI_WARNINGS OFF;

    WITH ChargeRows(UnitCharge, prev_rank, curr_rank, next_rank) AS
    (
        SELECT UnitCharge,
            (ROW_NUMBER() OVER ( ORDER BY UnitCharge ) - 2.0) / ((
                SELECT COUNT(*) FROM MedicalProceduresForStatistics mp
                LEFT OUTER JOIN dbo.GeoAreaZipcodes gz ON gz.ZipCode =
                    SUBSTRING(mp.ProviderZipcode, 1, 3)
                WHERE ProcedureCode = @ProcedureCode AND Modifier1 = @ModifierCode AND
                    (gz.GeoArea = @GeoArea OR SUBSTRING(mp.GeoAreaCode, 7, 3) = @GeoArea)) - 1) [prev_rank],
            (ROW_NUMBER() OVER ( ORDER BY UnitCharge ) - 1.0) / ((
                SELECT COUNT(*) FROM MedicalProceduresForStatistics mp
                LEFT OUTER JOIN dbo.GeoAreaZipcodes gz ON gz.ZipCode =
                    SUBSTRING(mp.ProviderZipcode, 1, 3)
                WHERE ProcedureCode = @ProcedureCode AND Modifier1 = @ModifierCode AND
                    (gz.GeoArea = @GeoArea OR SUBSTRING(mp.GeoAreaCode, 7, 3) = @GeoArea)) - 1) [curr_rank],
            (ROW_NUMBER() OVER ( ORDER BY UnitCharge ) + 0.0) / ((
                SELECT COUNT(*) FROM MedicalProceduresForStatistics mp
                LEFT OUTER JOIN dbo.GeoAreaZipcodes gz ON gz.ZipCode =
                    SUBSTRING(mp.ProviderZipcode, 1, 3)
                WHERE ProcedureCode = @ProcedureCode AND Modifier1 = @ModifierCode AND
                    (gz.GeoArea = @GeoArea OR SUBSTRING(mp.GeoAreaCode, 7, 3) = @GeoArea)) - 1) [next_rank]
        FROM MedicalProceduresForStatistics mp
        LEFT OUTER JOIN dbo.GeoAreaZipcodes gz
            ON gz.ZipCode = SUBSTRING(mp.ProviderZipcode, 1, 3)
        WHERE ProcedureCode = @ProcedureCode
        AND Modifier1 = @ModifierCode
        AND (
            gz.GeoArea = @GeoArea
            OR
            SUBSTRING(mp.GeoAreaCode, 7, 3) = @GeoArea
        )
    )
    SELECT @Result =
        CASE
            WHEN t1.UnitCharge = t2.UnitCharge THEN t1.UnitCharge
            ELSE t1.UnitCharge + (t2.UnitCharge - t1.UnitCharge) * ((@percentile - t1.curr_rank) / (t2.curr_rank - t1.curr_rank))
        END
    FROM ChargeRows t1, ChargeRows t2
    WHERE (t1.curr_rank = @Percentile OR (t1.curr_rank < @Percentile AND t1.next_rank > @Percentile))
    AND (t2.curr_rank = @Percentile OR (t2.curr_rank > @Percentile AND t2.prev_rank < @Percentile))

END

GO

```





```
/*
```

```
    This script creates the database, objects, and common data
    used for the Aetna out of network variance analysis.
```

```
    NOTE:      Update the location and year of the MDF and LDF files (lines 10 and 12)
                to indicate the year of the Aetna claims imported.
```

```
*/
```

```
USE MASTER
CREATE DATABASE [Aetna] ON PRIMARY
( NAME = N'Aetna2008', FILENAME = N'E:\Program Files\Microsoft SQL Server\MSSQL10.MSSQLSERVER\MSSQL\DATA\Aetna2008.mdf' , SIZE =
160GB , MAXSIZE = UNLIMITED, FILEGROWTH = 50MB )
LOG ON
( NAME = N'Aetna2008_log', FILENAME = N'E:\Program Files\Microsoft SQL Server\MSSQL10.MSSQLSERVER\MSSQL\DATA\Aetna2008.ldf' , SIZE
= 20GB , MAXSIZE = UNLIMITED , FILEGROWTH = 10%)
GO

USE [Aetna]
ALTER DATABASE [Aetna] SET COMPATIBILITY_LEVEL = 100
GO

IF (1 = FULLTEXTSERVICEPROPERTY('IsFullTextInstalled'))
BEGIN
    EXEC [Aetna].[dbo].[sp_fulltext_database] @action = 'enable'
END
GO

ALTER DATABASE [Aetna] SET ANSI_NULL_DEFAULT OFF
GO

ALTER DATABASE [Aetna] SET ANSI_NULLS OFF
GO

ALTER DATABASE [Aetna] SET ANSI_PADDING OFF
GO

ALTER DATABASE [Aetna] SET ANSI_WARNINGS OFF
GO

ALTER DATABASE [Aetna] SET ARITHABORT OFF
GO

ALTER DATABASE [Aetna] SET AUTO_CLOSE OFF
GO

ALTER DATABASE [Aetna] SET AUTO_CREATE_STATISTICS ON
GO

ALTER DATABASE [Aetna] SET AUTO_SHRINK OFF
GO

ALTER DATABASE [Aetna] SET AUTO_UPDATE_STATISTICS ON
GO

ALTER DATABASE [Aetna] SET CURSOR_CLOSE_ON_COMMIT OFF
GO

ALTER DATABASE [Aetna] SET CURSOR_DEFAULT GLOBAL
GO

ALTER DATABASE [Aetna] SET CONCAT_NULL_YIELDS_NULL OFF
GO

ALTER DATABASE [Aetna] SET NUMERIC_ROUNDABORT OFF
GO
```

```
ALTER DATABASE [Aetna] SET QUOTED_IDENTIFIER OFF
GO
```

```
ALTER DATABASE [Aetna] SET RECURSIVE_TRIGGERS OFF
GO
```

```
ALTER DATABASE [Aetna] SET DISABLE_BROKER
GO
```

```
ALTER DATABASE [Aetna] SET AUTO_UPDATE_STATISTICS_ASYNC OFF
GO
```

```
ALTER DATABASE [Aetna] SET DATE_CORRELATION_OPTIMIZATION OFF
GO
```

```
ALTER DATABASE [Aetna] SET TRUSTWORTHY OFF
GO
```

```
ALTER DATABASE [Aetna] SET ALLOW_SNAPSHOT_ISOLATION OFF
GO
```

```
ALTER DATABASE [Aetna] SET PARAMETERIZATION SIMPLE
GO
```

```
ALTER DATABASE [Aetna] SET READ_COMMITTED_SNAPSHOT OFF
GO
```

```
ALTER DATABASE [Aetna] SET HONOR_BROKER_PRIORITY OFF
GO
```

```
ALTER DATABASE [Aetna] SET READ_WRITE
GO
```

```
ALTER DATABASE [Aetna] SET RECOVERY SIMPLE
GO
```

```
ALTER DATABASE [Aetna] SET MULTI_USER
GO
```

```
ALTER DATABASE [Aetna] SET PAGE_VERIFY CHECKSUM
GO
```

```
ALTER DATABASE [Aetna] SET DB_CHAINING OFF
GO
```

```
-- Tables
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
SET ANSI_PADDING ON
GO
```

```
CREATE TABLE [dbo].[LineItem](
    [ClaimId] [varchar](8) NOT NULL,
    [ClaimSegment] [varchar](2) NOT NULL,
    [ClaimIdPrefix] [varchar](1) NOT NULL,
    [ClaimLine] [varchar](2) NOT NULL,
    [ProcedureCode] [varchar](5) NULL,
    [Modifier1] [varchar](2) NULL,
    [Modifier2] [varchar](2) NULL,
    [Modifier3] [varchar](2) NULL,
    [RatingSystemUsedCode] [varchar](6) NULL,
    [GeoAreaCode] [varchar](9) NULL,
    [TypeOfServiceCode] [varchar](3) NULL,
    [PlaceOfServiceCode] [varchar](2) NULL,
```

```

[OriginalPlaceOfServiceCode] [varchar](2) NULL,
[SubmittedAmount] [money] NULL,
[OriginalSubmittedAmount] [money] NULL,
[FacilitySubmittedAmount] [money] NULL,
[DeductibleAmount1] [money] NULL,
[DeductibleAmount2] [money] NULL,
[CoPayAmount1] [money] NULL,
[CoPayAmount2] [money] NULL,
[AllowedAmount1] [money] NULL,
[AllowedAmount2] [money] NULL,
[FacilityAllowedAmount] [money] NULL,
[SubmittedUnitCount] [int] NULL,
[LineItemTypeCode] [varchar](3) NULL,
[SubmissionType] [varchar](1) NULL,
[ExplanationCode] [varchar](3) NULL,
[PricingProfileCode] [varchar](1) NULL,
[ConsideredAmount] [money] NULL,
[AltPricedAmount] [money] NULL,
[AltPricedAmountSource] [varchar](1) NULL,
[RcRateSourceCode] [varchar](1) NULL,
[OutlierAdjAmount] [money] NULL,
[PricerAmount] [money] NULL,
[ProcedureCategoryId] [int] NULL
) ON [PRIMARY]
GO

CREATE TABLE [dbo].[Claim](
    [ClaimId] [varchar](8) NOT NULL,
    [ClaimSegment] [varchar](2) NOT NULL,
    [ClaimIdPrefix] [varchar](1) NOT NULL,
    [PaymentBenefitLevel] [varchar](2) NULL,
    [EligibilityCoverageCode] [varchar](2) NULL,
    [TotalSubmittedAmount] [varchar](8) NULL,
    [ServiceYear] [varchar](4) NULL,
    [ClaimStatus] [varchar](2) NULL,
    [MajorLineOfCoverage] [varchar](6) NULL,
    [NextPreviousSegment] [varchar](4) NULL,
    [PaymentProductActionCode] [varchar](1) NULL,
    [RelationToMember] [varchar](1) NULL,
    [ExternalClaimId] [varchar](8) NULL,
    [ExternalClaimSegment] [varchar](2) NULL,
    [ExternalClaimPrefix] [varchar](1) NULL,
    [ExternalClaimUniqueld] [varchar](9) NULL,
    [PlanSponsorControl] [varchar](7) NULL,
    [PlanSponsorSuffix] [varchar](3) NULL,
    [PlanSponsorAccount] [varchar](5) NULL,
    [ProviderType] [varchar](3) NULL,
    [ProcessDate] [varchar](26) NULL,
    [ProductCategoryCode1] [varchar](11) NULL,
    [ProductCategoryCode2] [varchar](1) NULL,
    [ProviderNetworkProductCode] [varchar](6) NULL,
    [ProviderZipcode] [varchar](5) NULL,
    [ProviderState] [varchar](2) NULL,
    [NetworkServiceArea] [varchar](7) NULL,
    [NetworkIdentifier] [varchar](5) NULL,
    [FirstOrResubmitIndicator] [varchar](1) NULL,
    [BundlingCode] [varchar](1) NULL,
    [ErisaCode] [varchar](1) NULL,
    [AdjustmentTypeCode] [varchar](2) NULL,
    [ContractTypeCode] [varchar](2) NULL,
    [PricingTypeCode] [varchar](1) NULL,
    [AdhocLowDollarExclusionCode] [varchar](2) NULL,
    [ExternalPricingVendorId] [varchar](6) NULL,
    [FeeScheduleExclusionId] [varchar](2) NULL,
    [PricingVendorCode] [varchar](4) NULL,
    [NetworkId] [varchar](4) NULL,

```

```

[UserField2] [varchar](10) NULL,
[CobIndicator] [char](2) NULL,
[CobPaidAmount] [money] NULL,
[CobType] [char](1) NULL,
[CobCode] [char](1) NULL,
GO

CREATE TABLE [dbo].[AetnaFeeStatistics](
    [State] [char](2) NOT NULL,
    [ProcedureCode] [char](5) NOT NULL,
    [ModifierCode] [char](2) NULL,
    [FeeMinimum] [money] NULL,
    [FeeMaximum] [money] NULL,
    [FeeMean] [money] NULL,
    [FeeMedian] [money] NULL,
    [FeeMode] [money] NULL,
    [ModeTie] [bit] NULL,
    [FeeStandardDeviation] [money] NULL,
    [PopulationCount] [bigint] NULL,
    [TotalCount] [bigint] NULL,
    [Percentile25] [money] NULL,
    [Percentile50] [money] NULL,
    [Percentile60] [money] NULL,
    [Percentile70] [money] NULL,
    [Percentile75] [money] NULL,
    [Percentile80] [money] NULL,
    [Percentile80LowerBound] [money] NULL,
    [Percentile80UpperBound] [money] NULL,
    [Percentile85] [money] NULL,
    [Percentile90] [money] NULL,
    [Percentile95] [money] NULL
) ON [PRIMARY]
GO
SET ANSI_PADDING OFF
GO
CREATE CLUSTERED INDEX [IX_AetnaFeeStatistics] ON [dbo].[AetnaFeeStatistics]
(
    [State] ASC,
    [ProcedureCode] ASC,
    [ModifierCode] ASC
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, SORT_IN_TEMPDB = OFF, IGNORE_DUP_KEY = OFF, DROP_EXISTING = OFF,
ONLINE = OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]
GO

SET ANSI_PADDING ON
GO
CREATE TABLE [dbo].[AetnaGeoFeeStatistics](
    [GeoArea] [char](3) NOT NULL,
    [ProcedureCode] [char](5) NOT NULL,
    [ModifierCode] [char](2) NOT NULL,
    [FeeMinimum] [money] NULL,
    [FeeMaximum] [money] NULL,
    [FeeMean] [money] NULL,
    [FeeMedian] [money] NULL,
    [FeeMode] [money] NULL,
    [ModeTie] [bit] NULL,
    [FeeStandardDeviation] [money] NULL,
    [PopulationCount] [bigint] NULL,
    [TotalCount] [bigint] NULL,
    [Percentile80] [money] NULL,
CONSTRAINT [PK_AetnaGeoFeeStatistics] PRIMARY KEY CLUSTERED
(
    [GeoArea] ASC,
    [ProcedureCode] ASC,
    [ModifierCode] ASC

```

```

)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS =
ON) ON [PRIMARY]
) ON [PRIMARY]
GO

```

```

CREATE TABLE [dbo].[IngenixFeeStatistics]
(
[GeoArea] [char] (3) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[ProcedureCode] [char] (5) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[SystemTypeCode] [char] (2) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[RecordType] [char] (2) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
[BodySystemCode] [char] (2) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
[StateCode] [char] (2) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
[Occurrences] [bigint] NULL,
[FeeMean] [money] NULL,
[FeeMode] [money] NULL,
[ModeTie] [bit] NULL,
[Percentile50] [money] NULL,
[Percentile60] [money] NULL,
[Percentile70] [money] NULL,
[Percentile75] [money] NULL,
[Percentile80] [money] NULL,
[Percentile85] [money] NULL,
[Percentile90] [money] NULL,
[Percentile95] [money] NULL
)
GO
ALTER TABLE [dbo].[IngenixFeeStatistics] ADD CONSTRAINT [PK_IngenixFeeStatistics] PRIMARY KEY CLUSTERED ([GeoArea], [ProcedureCode],
[SystemTypeCode])
GO

```

```

PRINT N'Creating [dbo].[GeoAreas]'
GO
CREATE TABLE [dbo].[GeoAreas]
(
[GeoArea] [char] (3) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[Name] [varchar] (24) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL
)
GO
ALTER TABLE [dbo].[GeoAreas] ADD CONSTRAINT [PK_GeoAreas] PRIMARY KEY CLUSTERED ([GeoArea])
GO

```

```

CREATE TABLE [dbo].[GeoAreaZipcodes]
(
[ZipCode] [char] (3) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
[GeoArea] [char] (3) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL
)
GO
ALTER TABLE [dbo].[GeoAreaZipcodes] ADD CONSTRAINT [PK_GeoAreaZipcodes] PRIMARY KEY CLUSTERED ([ZipCode])
GO

```

```

CREATE TABLE [dbo].[ProcedureCategoryDefinition](
    [ProcedureCategoryDefinitionId] [int] NOT NULL,
    [ProcedureCategoryId] [int] NOT NULL,
    [Name] [varchar](50) NOT NULL,
    [IsSubCategory] [bit] NOT NULL,
    [CodeStart] [char](5) NULL,
    [CodeEnd] [char](5) NULL,
    [FirstCharacterIsNumeric] [bit] NOT NULL,
    [LastCharacter] [char](1) NULL
) ON [PRIMARY]
GO
SET ANSI_PADDING OFF
GO
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (1, 1, N'General and Integumentary', 1, N'10000', N'19999', 1, NULL)

```

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (2, 1, N'Musculoskeletal System', 1, N'20000', N'29999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (3, 1, N'Respiratory System', 1, N'30000', N'32999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (4, 1, N'Cardiovascular System', 1, N'33000', N'39599', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (5, 1, N'Digestive System', 1, N'40490', N'49999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (6, 1, N'Urinary System', 1, N'50000', N'53999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (7, 1, N'Male Genital System', 1, N'54000', N'55980', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (8, 1, N'Female Genital System', 1, N'56405', N'60699', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (9, 1, N'Nervous System', 1, N'61000', N'64999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (10, 1, N'Eye and Ocular Adnexa', 1, N'65000', N'69999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (11, 2, N'Diagnostic Radiology', 1, N'70000', N'76499', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (12, 2, N'Diagnostic Ultrasound', 1, N'76500', N'76999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (13, 2, N'Radiologic Guidance', 1, N'77000', N'77050', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (14, 2, N'Mammography', 1, N'77051', N'77059', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (15, 2, N'Bone/Joint Studies', 1, N'77060', N'77084', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (16, 2, N'Radiation Oncology', 1, N'77261', N'77999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (17, 2, N'Nuclear Medicine', 1, N'78000', N'78999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (18, 2, N'Therapeutic Radiation', 1, N'79000', N'79999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (19, 3, N'Diagnostic Laboratory', 1, N'80000', N'85999', 1, NULL)

INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart], [CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (20, 3, N'Immunology & Transfusion', 1, N'86000', N'86999', 1, NULL)

```
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (21, 3, N'Microbiology', 1, N'87000', N'87999', 1, NULL)
```

```
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (22, 3, N'Pathology', 1, N'88000', N'88399', 1, NULL)
```

```
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (23, 3, N'Other', 1, N'88400', N'89999', 1, NULL)
```

```
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (24, 4, N'placeholder to build figures', 0, N'90000', N'99199', 1, NULL)
```

```
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (25, 4, N'placeholder to build figures', 0, N'99500', N'99999', 1, NULL)
```

```
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (26, 5, N'placeholder to build figures', 0, N'99200', N'99499', 1, NULL)
```

```
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (27, 6, N'placeholder to build figures', 0, NULL, NULL, 0, NULL)
```

```
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (28, 7, N'placeholder to build figures', 0, NULL, NULL, 1, N'F')
```

```
INSERT [dbo].[ProcedureCategoryDefinition] ([ProcedureCategoryDefinitionId], [ProcedureCategoryId], [Name], [IsSubCategory], [CodeStart],
[CodeEnd], [FirstCharacterIsNumeric], [LastCharacter]) VALUES (29, 8, N'placeholder to build figures', 0, NULL, NULL, 1, N'T')
```

```
SET ANSI_PADDING ON
```

```
GO
```

```
CREATE TABLE [dbo].[ProcedureCategory](
    [ProcedureCategoryId] [int] NOT NULL,
    [Name] [varchar](25) NOT NULL
```

```
) ON [PRIMARY]
```

```
GO
```

```
SET ANSI_PADDING OFF
```

```
GO
```

```
INSERT [dbo].[ProcedureCategory] ([ProcedureCategoryId], [Name]) VALUES (1, N'Surgical')
```

```
INSERT [dbo].[ProcedureCategory] ([ProcedureCategoryId], [Name]) VALUES (2, N'Radiology and Imaging')
```

```
INSERT [dbo].[ProcedureCategory] ([ProcedureCategoryId], [Name]) VALUES (3, N'Pathology and Laboratory')
```

```
INSERT [dbo].[ProcedureCategory] ([ProcedureCategoryId], [Name]) VALUES (4, N'Medicine')
```

```
INSERT [dbo].[ProcedureCategory] ([ProcedureCategoryId], [Name]) VALUES (5, N'Evaluation and Management')
```

```
INSERT [dbo].[ProcedureCategory] ([ProcedureCategoryId], [Name]) VALUES (6, N'HCPs II')
```

```
INSERT [dbo].[ProcedureCategory] ([ProcedureCategoryId], [Name]) VALUES (7, N'Category II')
```

```
INSERT [dbo].[ProcedureCategory] ([ProcedureCategoryId], [Name]) VALUES (8, N'Category III')
```

```
SET ANSI_PADDING ON
```

```
GO
```

```
CREATE TABLE [dbo].[sysssislog](
    [id] [int] IDENTITY(1,1) NOT NULL,
    [event] [sysname] NOT NULL,
    [computer] [nvarchar](128) NOT NULL,
    [operator] [nvarchar](128) NOT NULL,
    [source] [nvarchar](1024) NOT NULL,
    [sourceid] [uniqueidentifier] NOT NULL,
    [executionid] [uniqueidentifier] NOT NULL,
    [starttime] [datetime] NOT NULL,
    [endtime] [datetime] NOT NULL,
    [datacode] [int] NOT NULL,
    [databytes] [image] NULL,
    [message] [nvarchar](2048) NOT NULL,
```

```
PRIMARY KEY CLUSTERED
```

```

(
    [id] ASC
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS =
ON) ON [PRIMARY]
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO

EXEC sp_MS_marksystemobject N'[dbo].[sysssislog]'
GO

-- Views
CREATE VIEW [dbo].[MedicalProceduresForStatistics]
AS
SELECT dbo.Claim.ProviderState, dbo.LinelItem.ProcedureCode, dbo.LinelItem.Modifier1, dbo.LinelItem.SubmittedUnitCount,
    dbo.LinelItem.SubmittedAmount / dbo.LinelItem.SubmittedUnitCount AS UnitCharge
FROM dbo.LinelItem WITH (NOLOCK) INNER JOIN
    dbo.Claim WITH (NOLOCK) ON dbo.Claim.ClaimId = dbo.LinelItem.ClaimId AND dbo.Claim.ClaimSegment = dbo.LinelItem.ClaimSegment
AND
    dbo.Claim.ClaimIdPrefix = dbo.LinelItem.ClaimIdPrefix
WHERE (dbo.LinelItem.Modifier1 IN ( ' ', '26', 'TC')) AND (dbo.LinelItem.SubmittedUnitCount > 0) AND (dbo.Claim.ProviderState <> ' ') AND
    (dbo.LinelItem.ProcedureCode <> ' ') AND (dbo.LinelItem.PlaceOfServiceCode IN ('11', '12', '22'))

GO

CREATE VIEW [dbo].[DentalProceduresForStatistics]
AS
SELECT dbo.Claim.ProviderState, dbo.LinelItemDental.ProcedureCode, dbo.LinelItemDental.SubmittedUnitCount,
    dbo.LinelItemDental.SubmittedAmount / dbo.LinelItemDental.SubmittedUnitCount AS UnitCharge
FROM dbo.LinelItemDental WITH (NOLOCK) INNER JOIN
    dbo.Claim WITH (NOLOCK) ON dbo.Claim.ClaimId = dbo.LinelItemDental.ClaimId AND dbo.Claim.ClaimSegment =
    dbo.LinelItemDental.ClaimSegment AND
    dbo.Claim.ClaimIdPrefix = dbo.LinelItemDental.ClaimIdPrefix
WHERE (dbo.LinelItemDental.SubmittedUnitCount > 0) AND (dbo.Claim.ProviderState <> ' ') AND
    (dbo.LinelItemDental.ProcedureCode <> ' ')

GO

-- Procedures
CREATE PROCEDURE [dbo].[sp_ssis_addlogentry]
(
    @event sysname,
    @computer nvarchar(128),
    @operator nvarchar(128),
    @source nvarchar(1024),
    @sourceid uniqueidentifier,
    @executionid uniqueidentifier,
    @starttime datetime,
    @endtime datetime,
    @datacode int,
    @databytes image,
    @message nvarchar(2048)
)
AS
INSERT INTO sysssislog (event, computer, operator, source, sourceid, executionid, starttime, endtime, datacode, databytes, message)
VALUES (@event, @computer, @operator, @source, @sourceid, @executionid, @starttime, @endtime, @datacode, @databytes,
@message )

RETURN 0
GO

EXEC sp_MS_marksystemobject N'[dbo].[sp_ssis_addlogentry]'
GO

```



```

/* =====
* Name:          dbo.spGetProcedureCategory
* Description:    Returns the procedure category and definition ids for a procedure
                  Based on 2008 AMA definitions and is NOT generic (e.g. - will fail if a second
                  ProcedureCategoryDefinition is entered with FirstCharacterIsNumeric = False)
* Version:       $Revision:$
*
* Date           Author           Issue #    Notes
* -----
* 2009-04-11     Scott Buchanan
* ===== */
CREATE PROCEDURE [dbo].[spGetProcedureCategory]
(
    @procedureCode          char(5),
    @ProcedureCategoryId    int      OUTPUT,
    @ProcedureCategoryDefinitionId int  OUTPUT
)
AS
BEGIN
    SET NOCOUNT ON

    DECLARE @Resulttable TABLE(ProcedureCategoryId int, ProcedureCategoryDefinitionId int)
    -- Check for Category II and III codes first (as they overlap other code ranges)
    IF ISNUMERIC(SUBSTRING(@procedureCode, 5, 1)) <> 1
    BEGIN
        INSERT @Resulttable
        SELECT ProcedureCategoryId, ProcedureCategoryDefinitionId
        FROM dbo.ProcedureCategoryDefinition
        WHERE LastCharacter = SUBSTRING(@procedureCode, 5, 1)
    END
    ELSE
    -- Now check for HCPCS Level II codes, which start with a letter
    BEGIN
        IF ISNUMERIC(SUBSTRING(@procedureCode, 1, 1)) <> 1
        BEGIN
            INSERT @Resulttable
            SELECT ProcedureCategoryId, ProcedureCategoryDefinitionId
            FROM dbo.ProcedureCategoryDefinition
            WHERE FirstCharacterIsNumeric = 0
        END
        ELSE
        BEGIN
            INSERT @Resulttable
            SELECT ProcedureCategoryId, ProcedureCategoryDefinitionId
            FROM dbo.ProcedureCategoryDefinition
            WHERE @procedureCode BETWEEN CodeStart AND CodeEnd
        END
    END

    SET @ProcedureCategoryId = (SELECT ProcedureCategoryId FROM @Resulttable)
    SET @ProcedureCategoryDefinitionId = (SELECT ProcedureCategoryDefinitionId FROM @Resulttable)

    SET NOCOUNT OFF
    RETURN
END
GO

/* =====
* Name:          dbo.CalculateFeeStatPercentile
* Description:    Calculates percentile for state+procedure+modifier
                  May be used for Median (50th percentile)
                  Pass @Percentile as a decimal (.8 = 80th, .5 = 50th, etc.)
* Version:       $Revision:$
*
* Date           Author           Issue #    Notes

```

```

* -----
* 2010-03-04      Scott Buchanan
* ===== */
CREATE PROCEDURE [dbo].[CalculateMedicalFeeStatPercentile]

    @State          char(2),
    @ProcedureCode   char(5),
    @ModifierCode    char(2),
    @Percentile      money,
    @Result          money    OUTPUT

AS
BEGIN
    -- SET NOCOUNT ON to prevent extra result sets from interfering with SELECT statements.
    SET NOCOUNT ON;

    SET ARITHABORT OFF;
    SET ARITHIGNORE OFF;
    SET ANSI_WARNINGS OFF;

    WITH ChargeRows(UnitCharge, prev_rank, curr_rank, next_rank) AS
    (
        SELECT UnitCharge,
            (ROW_NUMBER() OVER ( ORDER BY UnitCharge ) - 2.0) / ((SELECT COUNT(*) FROM MedicalProceduresForStatistics WHERE ProviderState =
            @State AND ProcedureCode = @ProcedureCode AND Modifier1 = @ModifierCode) - 1) [prev_rank],
            (ROW_NUMBER() OVER ( ORDER BY UnitCharge ) - 1.0) / ((SELECT COUNT(*) FROM MedicalProceduresForStatistics WHERE ProviderState =
            @State AND ProcedureCode = @ProcedureCode AND Modifier1 = @ModifierCode) - 1) [curr_rank],
            (ROW_NUMBER() OVER ( ORDER BY UnitCharge ) + 0.0) / ((SELECT COUNT(*) FROM MedicalProceduresForStatistics WHERE ProviderState
            = @State AND ProcedureCode = @ProcedureCode AND Modifier1 = @ModifierCode) - 1) [next_rank]
        FROM MedicalProceduresForStatistics
        WHERE ProviderState = @State
        AND ProcedureCode = @ProcedureCode
        AND Modifier1 = @ModifierCode
    )
    SELECT @Result =
        CASE
            WHEN t1.UnitCharge = t2.UnitCharge THEN t1.UnitCharge
            ELSE t1.UnitCharge + (t2.UnitCharge - t1.UnitCharge) * ((@percentile - t1.curr_rank) / (t2.curr_rank - t1.curr_rank))
        END
    FROM ChargeRows t1, ChargeRows t2
    WHERE (t1.curr_rank = @Percentile OR (t1.curr_rank < @Percentile AND t1.next_rank > @Percentile))
    AND (t2.curr_rank = @Percentile OR (t2.curr_rank > @Percentile AND t2.prev_rank < @Percentile))

END
GO

/* =====
Author:          Scott Buchanan
Created:   29-Apr-2010
Description:Calculates percentile for GeoArea+procedure+modifier
===== */

ALTER PROCEDURE [dbo].[CalculateGeoAreaMedicalFeeStatPercentile]

    @GeoArea        char(3),
    @ProcedureCode   char(5),
    @ModifierCode    char(2),
    @Percentile      money,
    @Result          money    OUTPUT

AS
BEGIN
    -- SET NOCOUNT ON to prevent extra result sets from interfering with SELECT statements.
    SET NOCOUNT ON;

    SET ARITHABORT OFF;
    SET ARITHIGNORE OFF;
    SET ANSI_WARNINGS OFF;

```

```

WITH ChargeRows(UnitCharge, prev_rank, curr_rank, next_rank) AS
(
    SELECT UnitCharge,
    (ROW_NUMBER() OVER ( ORDER BY UnitCharge ) - 2.0) / ((
    SELECT COUNT(*) FROM MedicalProceduresForStatistics mp
    LEFT OUTER JOIN dbo.GeoAreaZipcodes gz ON gz.ZipCode =
SUBSTRING(mp.ProviderZipcode, 1, 3)
    LEFT OUTER JOIN dbo.GeoAreas ga ON ga.GeoArea = SUBSTRING(mp.GeoAreaCode, 7,
3)
    WHERE ProcedureCode = @ProcedureCode AND Modifier1 = @ModifierCode AND
(gz.GeoArea = @GeoArea OR ga.GeoArea = @GeoArea)) - 1) [prev_rank],
    (ROW_NUMBER() OVER ( ORDER BY UnitCharge ) - 1.0) / ((
    SELECT COUNT(*) FROM MedicalProceduresForStatistics mp
    LEFT OUTER JOIN dbo.GeoAreaZipcodes gz ON gz.ZipCode =
SUBSTRING(mp.ProviderZipcode, 1, 3)
    LEFT OUTER JOIN dbo.GeoAreas ga ON ga.GeoArea = SUBSTRING(mp.GeoAreaCode, 7,
3)
    WHERE ProcedureCode = @ProcedureCode AND Modifier1 = @ModifierCode AND
(gz.GeoArea = @GeoArea OR ga.GeoArea = @GeoArea)) - 1) [curr_rank],
    (ROW_NUMBER() OVER ( ORDER BY UnitCharge ) + 0.0) / ((
    SELECT COUNT(*) FROM MedicalProceduresForStatistics mp
    LEFT OUTER JOIN dbo.GeoAreaZipcodes gz ON gz.ZipCode =
SUBSTRING(mp.ProviderZipcode, 1, 3)
    LEFT OUTER JOIN dbo.GeoAreas ga ON ga.GeoArea = SUBSTRING(mp.GeoAreaCode, 7,
3)
    WHERE ProcedureCode = @ProcedureCode AND Modifier1 = @ModifierCode AND
(gz.GeoArea = @GeoArea OR ga.GeoArea = @GeoArea)) - 1) [next_rank]
    FROM MedicalProceduresForStatistics mp
    LEFT OUTER JOIN dbo.GeoAreaZipcodes gz
        ON gz.ZipCode = SUBSTRING(mp.ProviderZipcode, 1, 3)
    LEFT OUTER JOIN dbo.GeoAreas ga
        ON ga.GeoArea = SUBSTRING(mp.GeoAreaCode, 7, 3)
    WHERE ProcedureCode = @ProcedureCode
    AND Modifier1 = @ModifierCode
    AND (
        gz.GeoArea = @GeoArea
        OR
        ga.GeoArea = @GeoArea
    )
)
SELECT @Result =
CASE
    WHEN t1.UnitCharge = t2.UnitCharge THEN t1.UnitCharge
    ELSE t1.UnitCharge + (t2.UnitCharge - t1.UnitCharge) * ((@percentile - t1.curr_rank) / (t2.curr_rank - t1.curr_rank))
END
FROM ChargeRows t1, ChargeRows t2
WHERE (t1.curr_rank = @Percentile OR (t1.curr_rank < @Percentile AND t1.next_rank > @Percentile))
AND (t2.curr_rank = @Percentile OR (t2.curr_rank > @Percentile AND t2.prev_rank < @Percentile))

END
GO

```

-- Functions

```

/* =====
* Name:          dbo.tvfGetProcedureCategory
* Description:    Returns the procedure category and definition ids for a procedure
                  Based on 2008 AMA definitions and is NOT generic (e.g. - will fail if a second
                  ProcedureCategoryDefinition is entered with FirstCharacterIsNumeric = False)
* Version:       $Revision:$
*
* Date           Author           Issue #    Notes
* -----
* 2009-04-11     Scott Buchanan
* ===== */

```

```

CREATE FUNCTION [dbo].[tvfGetProcedureCategory]
(
    -- Add the parameters for the function
    @procedureCode          char(5)
)
RETURNS
@theProcedureCategory      TABLE
(
    -- Add the column definitions for the TABLE variable here
    ProcedureCode           char(5),
    ProcedureCategoryDefinitionId int,
    ProcedureCategoryId      int
)
AS
BEGIN
    -- Check for Category II and III codes first (as they overlap other code ranges)
    IF ISNUMERIC(SUBSTRING(@procedureCode, 5, 1)) <> 1
    BEGIN
        INSERT @theProcedureCategory
        SELECT @procedureCode, ProcedureCategoryDefinitionId, ProcedureCategoryId
        FROM dbo.ProcedureCategoryDefinition
        WHERE LastCharacter = SUBSTRING(@procedureCode, 5, 1)
    END
    ELSE
    -- Now check for HCPCS Level II codes, which start with a letter
    BEGIN
        IF ISNUMERIC(SUBSTRING(@procedureCode, 1, 1)) <> 1
        BEGIN
            INSERT @theProcedureCategory
            SELECT @procedureCode, ProcedureCategoryDefinitionId, ProcedureCategoryId
            FROM dbo.ProcedureCategoryDefinition
            WHERE FirstCharacterIsNumeric = 0
        END
        ELSE
        BEGIN
            INSERT @theProcedureCategory
            SELECT @procedureCode, ProcedureCategoryDefinitionId, ProcedureCategoryId
            FROM dbo.ProcedureCategoryDefinition
            WHERE @procedureCode BETWEEN CodeStart AND CodeEnd
        END
    END
    END
    RETURN
END
GO

```

```

/*
    Build GeoArea 80th percentile for medical procedures
*/
DECLARE @GeoArea          char(3)
DECLARE @ProcedureCode    char(5)
DECLARE @ModifierCode     char(2)
DECLARE @Percentile80     money
DECLARE @Result           money

DECLARE FeeStatsCursor cursor
    FOR SELECT GeoArea, ProcedureCode, ModifierCode, Percentile80
    FROM dbo.AetnaGeoFeeStatistics
    WHERE Percentile80 IS NULL
    --AND PopulationCount > 9
    FOR UPDATE --OF Percentile80

OPEN FeeStatsCursor
FETCH NEXT FROM FeeStatsCursor
    INTO @GeoArea, @ProcedureCode, @ModifierCode, @Percentile80
-- Check @@FETCH_STATUS to see if there are any more rows to fetch.
WHILE @@FETCH_STATUS = 0
BEGIN
    EXEC dbo.CalculateGeoAreaMedicalFeeStatPercentile @GeoArea, @ProcedureCode, @ModifierCode, .8, @Percentile80 OUTPUT

    UPDATE dbo.AetnaGeoFeeStatistics
    SET Percentile80 = @Percentile80
    WHERE CURRENT OF FeeStatsCursor

    -- This is executed as long as the previous fetch succeeds.
    FETCH NEXT FROM FeeStatsCursor
    INTO @GeoArea, @ProcedureCode, @ModifierCode, @Percentile80
END
CLOSE FeeStatsCursor
DEALLOCATE FeeStatsCursor

```

# **EXHIBIT C**

**UNITED STATES DISTRICT COURT  
DISTRICT OF NEW JERSEY**

---

**IN RE: AETNA UCR LITIGATION**

MDL No. 2020

This Document Relates to: ALL CASES

Master Case No. 07-3541 (FSH) (PS)

---

**PLAINTIFFS' EXPERT REPORT DATED APRIL 6, 2010**

---

**Bernard R. Siskin, Ph.D.**

**Director and Head of the Labor Practice Unit of LECG**  
**Philadelphia, PA**

**INTRODUCTION**

I am submitting this Expert Report relating to Aetna's use of the Ingenix database to determine Usual, Customary and Reasonable ("UCR" aka "R&C") amounts. I have opined about the flaws in the UCR databases in the expert reports dated March 31, 2004 (HIAA) and June 15, 2006 (Ingenix) submitted in the *McCoy v. Health Net* case before this Court. On April 10, 2008, I appeared before the Court in the McCoy matter to explain the basis for my conclusions that Ingenix data is flawed and produces skewed R&C. The principles and requirements for a valid UCR database discussed in my prior reports and testimony are incorporated here.

I have been retained as an expert witness on behalf of plaintiffs ("Plaintiffs") to provide an analysis of the Ingenix databases, including the Prevailing Healthcare Charge System data and databases (hereinafter "PHCS Database") and the Medical Data Research ("MDR") database

(collectively, "Ingenix Databases") used by Aetna to determine R&C amounts for its subscriber members who have received services from non-participating medical providers (i.e., those whose charges have not been negotiated in advance with Aetna). Using a methodology that is considered reliable and generally accepted for statistical analysis, it is my opinion that the Ingenix Databases suffer from fundamental flaws that make them invalid for calculating R&C amounts.

### **EDUCATION AND PROFESSIONAL QUALIFICATIONS**

I am a Director of LECG and work in the Philadelphia, Pennsylvania office. I received my Ph.D. in Statistics with a minor in Econometrics from the Wharton School of the University of Pennsylvania in 1970. Upon graduation, I became an assistant professor at Temple University in Philadelphia, Pennsylvania. I served as Chairman of Temple University's Department of Statistics for five years. I remained at Temple until 1984, when I resigned my tenured professorship position.

Since receiving my Ph.D., I have specialized in the application of statistics in a forensic setting. Much of my professional experience over the past thirty years has involved analyzing data and evaluating whether data are appropriate and sufficient for inferential analysis. I have written on the proper use, reliability and validity of databases (also known as data sets) for particular applications and have lectured widely on these topics. I have been retained by several courts, governmental agencies, states and private organizations to evaluate and/assess a wide variety of databases. These institutions include: the Third Circuit Task Force on Equal Treatment in the Courts, the National Aeronautics and Space Agency (NASA), the United States Justice Department, the Central Intelligence Agency, the Federal Bureau of Investigation, the Environmental Protection Agency, various states such as New Jersey, California, Connecticut, and Alaska, and numerous municipalities such as New York, Chicago, Philadelphia and Akron, along with numerous private



corporations such as: Automatic Data Processing, Amerihealth, McKesson, Lafarge, Merck, Rohm & Haas and Washington Mutual.

### **III. FEDERAL COURT CERTIFICATION AS AN EXPERT**

I have testified in more than 100 cases on the issue of the application and use of statistical evidence. The analyses I have conducted have involved allegations regarding the presence or absence of statistical reliability in data sets. I have also been appointed by courts as a neutral, jointly-agreed-upon expert to undertake specific statistical analyses. My curriculum vita is annexed as Attachment 1.

### **IV. EXPERTISE**

I am an expert in statistics: the science of collecting, classifying, presenting and interpreting numerical data; the analysis of data and the limitations of what can and cannot be properly inferred from data.

### **V. CLASS ISSUES**

I understand that the Court will need to assess class issues. My expert report touches upon several class issues, including typicality, commonality and predominance.

## **VI. INFORMATION CONSIDERED IN FORMING MY OPINIONS**

In forming my opinions, I have reviewed the materials referred to in my prior reports (dated March 31, 2004 and June 15, 2006) as well as the following documents:

Aetna-specific policies and procedures relating to R&C including discussions among claims personnel; R&C training materials; materials related to use of Aetna's internal data or outdated data or a percentage of Medicare; Documents relating to profiling, including profiling guidelines and internal discussions about their use; Deposition testimony excerpts including from Ingenix personnel (Carla Gee) and Aetna personnel (Deb Justo) and certain interrogatory answers.

Weil Gotshal letter dated December 17, 2009 to Aetna subscriber counsel listing the number of records and the percentage of Aetna's data contribution to Ingenix.

Documents identified in this report or in my prior report.

## **VII. DISCUSSION**

### **A. Overview**

Aetna defines R&C in relevant part as:

Only that part of a charge which is reasonable is covered. The reasonable charge for a service or supply is the lowest of:

- ° the provider's usual charge for furnishing it; and
- ° the charge Aetna determines to be appropriate, based on factors such as the cost of providing the same or a similar service or supply and the manner in which charges for the service or supply are made; and
- ° the charge Aetna determines to be the prevailing charge level made for it in the geographic area where it is furnished.

In determining the reasonable charge for service or supply that is:

- ° unusual; or
- ° not often provided in the areas; or
- ° provided by only a small number of providers in the area;

Aetna may take into account factors, such as:

- the complexity;
- the degree of skill needed;
- the type of specialty of the provider
- the range of services or supplies provided by a facility; and
- the prevailing charge in other areas.

The definition above identifies certain of the core concepts necessary for developing an R&C standard.

If Aetna is to determine R&C consistent with this definition, it must have a database that allows it to assess the core factors. Aetna uses other data to determine R&C that does not address or consider these factors including outdated data, internal Aetna data and a percentage of Medicare..

To assess a reasonable charge for a particular medical service, one must rely on actual charges billed by similar providers for reasonably similar services performed for a similar patients (age, etc.) in a relevant geographic area. In order to determine the set of reasonably similar services, the database would need to contain information on those factors which one would expect to affect the cost of the services, such as: (i) significant differences in provider qualifications, (ii) significant differences in type of medical service provided, and (iii) significant differences in medical market area. Given this information, one could then determine which charges are reasonable and which are “too high.” A review of the Ingenix databases shows that they do not (and cannot) satisfy the core concepts of reasonably similar provider qualifications, medical services rendered and medical market area in which the service is performed. In sum, the Ingenix Databases do not allow one to compute a distribution of charges which are sufficiently similar that one can reasonably assess which charges are reasonable and which charges are “too high.”

## **B. Methodology Review**

In evaluating the Ingenix Databases, I considered the following general principles:

1. the stated purpose for the data (*e.g.* any relevant or other definition);
2. the data collected and the manner of its collection;
3. the data not collected and the reasons therefore;
4. the steps taken to ensure the accuracy, comprehensiveness and completeness of the data collected;
5. the editing of the data, if any, and whether such editing impacted the resulting distribution of the data and its validity;
6. the end use for the data, and whether the data necessary for such end use have been collected; and
7. whether any biases (distortions) were introduced at any point in the methodology.

## **OVERVIEW**

### **Ingenix Uses Flawed Methodology (Data Contribution and Processing) to Create the MDR and PHCS Databases**

In 2000-01, Ingenix consolidated the MDR and PHCS databases and the data contribution and screening (editing) process (*i.e.*, “scrubbing”) used to create them. I explain in this report how these databases share a flawed underlying methodology (including both data contribution and editing), which skews downward the amounts reported by the Ingenix databases for the percentiles at and above the 70<sup>th</sup> percentile (“Upper Percentiles”). As I note, these methodological flaws affect all CPT codes in all geographic areas. The methodology does not consider: any differentiation of services provided within a CPT code; patient age or health and conditions; patient’s prior medical history; the provider’s qualifications, credentials, specialty, training or experience; and the place of service (hospital, clinic or doctor’s office).

The first step in Ingenix's methodology is the collection of data from voluntary Data Contributors ("Step 1"). The data it receives is a convenience sample. Ingenix fails to ensure that the convenience sample is representative of the population of charges. It fails to ensure the Contributed Data contains the fields it requested, is not pre-edited to remove high charges, does not contain non-market charges, and reflects each Data Contributor's complete population of relevant charges. It then edits or "scrubs" (*i.e.*, deletes) the data using a "scrubber" prior to analytical processing ("Step 2"). Ingenix's scrubbing is inappropriate for two reasons. First, it uses formulaic edits to identify purported statistical outliers and automatically removes them without factual basis or further investigation to determine if they are truly incorrect data points (and should be removed) or are simply high (or low) charges that should not be removed. The incorrect removal of valid charges, even if removed from both the high and low ends, biases the Upper Percentile values downward. If an equal number of valid charges are deleted from the high and low ends, the Upper Percentiles will be biased downward. Even if more valid low charges than valid high charges are removed, the Upper Percentiles will most likely be biased downward. For example, if Ingenix removes just 5 percent of total valid charges from the high end, it would have to remove 4 times that number, or 20 percent, of total charges from the low end before the 80<sup>th</sup> percentile in the "scrubbed" data is the actual 80<sup>th</sup> percentile of all the valid charges. Secondly, Ingenix's scrubbing combines the charges for a broad range of CPT codes without adjusting for differences in the spread of charges between CPT codes (*i.e.*, the "standard deviation"). This flaw tends to systematically remove valid high data points, particularly in CPT codes having a wide variation in charges (*e.g.*, because different types of providers are billing the same CPT code). This biases the Upper Percentile values downward.

The third and final step is the analysis and publication of the scrubbed data (“Step 3”). Ingenix produces MDR and PHCS data for each three-digit zip code area in the nation. The PHCS database calculates and reports the percentile distribution of reported charges for individual CPT codes having at least nine occurrences in the final database. For CPT codes for which fewer than nine charges are reported, the PHCS database reports a “derived” percentile distribution of charges. PHCS derives charge data for approximately 90 percent of all CPT codes because the vast majority of data reported is for the most common 10 percent of CPT codes. The MDR Database derives charge data for all CPT codes. Derived percentile amounts are estimated for both PHCS and MDR by: (i) grouping together various CPT charges after the different CPT charges have purportedly been adjusted so that they are comparable; (ii) computing the percentiles of the combined CPT charges; and (iii) readjusting the percentiles of the combined data to represent the percentiles of the different CPT charges. However, Ingenix fails to adjust for the differences in the spread of charges (i.e., standard deviation) within each CPT code among the combined CPT charges and, as a result, the derived percentiles are all biased (other than the mean). This flaw results in understatement of the Upper Percentiles of the derived PHCS and MDR data. Because R&C seeks to determine what “most” providers charge for a similar service in a geographical area, the relevant data points are the Upper Percentile values. This means that the relevant data points are disproportionately affected (biased) by Ingenix’s improper methodology for deriving data.

The end result of Ingenix’s methodology is that the Ingenix data:

- Does not use appropriate statistical methodology (including sampling, data editing or data estimation) and as a result, creates data that is inappropriate and biased downward for use in computing R&C<sup>1</sup>;

---

<sup>1</sup> The bias occurs at the Upper Percentile values. Cognizant of this bias, Ingenix disclaims the use of its data to compute R&C. Ingenix publishes both the MDR and PHCS data with the following disclaimer:

- Does not ensure that the data it collects does not pre-screen out valid high charges, does not contain non-market charges, and is complete in that it contains all the requested information on all the Data Contributors' relevant charges;
- Does not ensure that the data it reports is representative of the total population of relevant charges in the geographic area;
- Does not report<sup>2</sup> the qualifications of the providers billing the charge data (whether medical doctor, nurse practitioner, physician assistant, etc.);
- Does not report the training, experience or expertise of the providers billing the charge data;
- Does not report modifiers billed by the providers;
- Does not report the place of service (*i.e.*, clinic, hospital, medical office) for the charge data;

---

"Client is responsible for decisions made and actions taken based on the database. The database is designed and intended for use by professionals experienced in the uses and limitations of claims processing, and it is client's responsibility to ascertain the suitability of the database for client's purposes. The database is provided for informational purposes only and Ingenix disclaims any endorsement, approval, or recommendation of data in the database." Gee Ex. 12 (PHCS); Ex. 39 (MDR).

Ingenix's Product Schedule agreement prior to 2005 stated:

"The Data is provided to Customer for informational purposes only. Ingenix disclaims any endorsement, approval or recommendation of particular uses of the Data. There is neither a stated nor an implied 'reasonable and customary' charge, either actual or derived; neither is there a stated nor an implied 'reasonable and customary' conversion factor. Any interpretation and/or use of the Data by Customer is solely and exclusively at the discretion of Customer. Customer shall not represent the Data in any way other than as expressed in this paragraph." PHS 7009738.

In April 2005, Ingenix's Product Schedule agreement reflected the additional italicized language:

"The Data is provided to Customer for informational purposes only. *Customer acknowledges that the Data is a tool that Customer may use in various ways in its internal business.* Ingenix disclaims any endorsement, approval or recommendation of particular uses of the Data *either in general or with respect to Customer's operations.* The Data does not provide to Customer a stated or an implied 'reasonable and customary' charge, either actual or derived. *The Data does not contain* a stated nor an implied 'reasonable and customary' conversion factor. Any *reliance upon*, interpretation of and/or use of the Data by Customer is solely and exclusively at the discretion of Customer. *Customer's determination or establishment of an appropriate reimbursement level or fee is solely within Customer's discretion, regardless of whether Customer uses the Data.* Ingenix does not determine, on Customer's behalf, the appropriate fee or reimbursement levels for Customer and its business. *Customer acknowledges that Ingenix sells both the MDR and the PHCS relative and actual charge databases, and that Customer has decided to license the PHCS database.* Customer shall not represent the Data in any way other than as expressed in this paragraph." PHS 7108744.

<sup>2</sup> I will use the word "report" to mean "collect", "determine", "include" "identify," and "use as a basis for R&C calculations."



- Does not report the type of service (*i.e.*, inpatient, emergency, ambulatory surgery) for the charge data;
- Improperly edits out valid charges, which biases the Upper Percentiles of reported data downward; and
- Statistically incorrectly estimates derived percentile data which understates the Upper Percentile values.

I explain in detail below my critique of Ingenix's methodology and my conclusion that the MDR and PHCS databases are unreliable and invalid for determining usual, customary and reasonable ("R&C") amounts for services rendered to Aetna members by out-of-network providers. I also provide an overview of how Aetna's claims system uses the Ingenix data to make R&C determinations.

#### **I. DETAILED DISCUSSION REGARDING INGENIX'S METHODOLOGY INGENIX'S DATA CONTRIBUTION FLAWS (STEP 1)**

Proper statistical procedures require that Ingenix assess the completeness and accuracy of the data it receives from its Data Contributors, and ensure that its rules are being followed. A Data Contributor database cannot be considered valid when there is inadequate data quality control in place. Ingenix's<sup>3</sup> methodology for selecting a convenience sample without testing or validation results in two fundamental flaws: *first*, one cannot assume that the Contributed Data was representative of the population of charges; and *second*, there were no controls in place to ensure that Data Contributors were contributing appropriate data (e.g., market charge data, complete data reflecting all of their relevant charges, etc.) and were not pre-editing or pre-scrubbing their

---

<sup>3</sup> A convenience sampling and the reward system in which reimbursement is based only on the amount of data passing screening; entices Data Contributors to eliminate high values when submitting data regardless of whether the charge was valid or not. I explain Aetna's prescrubbing of its data contribution *infra*. Another flaw is that the data contributed by each Data Contributor was not established as representative of all its charge data.



Contributed Data. The mere existence of large quantities of data would not remedy the fundamental flaws caused by incomplete, unrepresentative and pre-scrubbed Contributed Data.

Recent testimony provided by Aetna, CIGNA and Ingenix witnesses have confirmed the numerous deficiencies in Ingenix's data collection process which I discussed in prior reports. These deficiencies render the data unusable for the stated purpose of assisting Ingenix customers (such as Aetna) in determining R&C.

**A. Ingenix Does Not Receive Useful Data on Provider, Place of Service, Difference in Level of Service or Type of Service within CPT Codes Necessary for Properly Estimating R&C**

Ingenix has never consistently received expanded information from its Data Contributors. As a result, Ingenix only uses limited information consisting of the date of service, CPT code (5 digits only rather than 7 digits which would include modifiers), billed charge and provider's zip code. When Ingenix started to collect provider information (*e.g.*, the identity of the provider, the provider's professional degree specialty, etc.), its Data Contributors provided it partially or not at all. As a result, Ingenix continued doing its analysis and created the final PHCS and MDR data without considering provider-specific information. Data Contributors also do not consistently contribute other data fields that Ingenix purports to require, such as patient information, place of service and type of service. Thus, Ingenix does not consider these additional factors in the Ingenix databases.

Aetna, CIGNA and Guardian, all confirmed that they do not provide adequate expanded data to Ingenix. CIGNA, for example, provides fewer than half of the allegedly required data fields, and provides *no* provider-specific information (*e.g.*, the name and address of the provider; his or her licensure, specialty, etc.). At least until March 2005, when it apparently stopped contributing data, Guardian continued to contribute only the same limited four data elements that it contributed since

the 1970s and it failed to provide provider-specific and patient-specific information. Ingenix has consistently acquiesced in receiving Contributed Data that does not include most of the requested information from Data Contributors and has continued to use only the same four data fields employed since the inception of the HIAA database: billed charge, date of charge, zip code of location where service provided; and CPT code.<sup>4</sup>

**B. CIGNA's Contributed Data Demonstrates That The PHCS Sample is Not Representative**

Both currently and in the past, CIGNA has maintained multiple claims systems. When I filed my report, "Plaintiffs' Supplemental Expert Report," dated June 15, 2006, I noted that: "CIGNA contributes data to Ingenix from only four of its nine claims systems. The five claims systems from which CIGNA does not contribute data are nationwide in scope. CIGNA stated that it decided not to contribute all its data to Ingenix because contributing additional data would not increase the discount it receives from Ingenix (75 percent). CIGNA has only one claims system from which it contributes data to Ingenix that contains any HCPCS data."<sup>1</sup>

It is my understanding that CIGNA verified that it "has historically submitted claims data to Ingenix from four of its claims systems: Dentacom, Medicom, CIGNA Claims, and Proclaim. As of November 2007 and March 2008, CIGNA ceased submitting data from CIGNA Claims and Medicom, respectively, to Ingenix because these claims platforms processed very few claims. Beginning in November 2009, in addition to Proclaim and Dentacom, CIGNA began submitting claims data for claims processed on Power MHS." Power MHS is one of CIGNA's major claims processing systems.

---

<sup>4</sup> HIAA, the operator of the predecessor database, stated that these four data fields were selected because they were relatively easy for Data Contributors to submit. HIAA acknowledged they do not provide provider-specific, patient-specific, service-specific information about the charge.

With respect to its other claims process systems, CIGNA states that:

“CIGNA does not submit data from the rest of its claims engines: single-site MHS, Amisys, MHC, CBH, PowerStepp (CIGNA Voluntary), Worldcare (CIGNA International) or Diamond 950 (CIGNA International). There are several reasons that CIGNA does not submit data from the remainder of its claims systems. First, CIGNA is not required by its contract with Ingenix to submit data from any particular claims system CIGNA sends data on a voluntary basis. Second, sending data from the remaining claims systems to Ingenix is not technologically practical. The four claims platforms from which CIGNA has historically sent data to Ingenix have capabilities that allow CIGNA to extract the data that Ingenix needs. Sending data from the remaining claims platforms would require considerable modifications to the claims platforms, and would also require CIGNA to develop an IT solution for extracting the data from those claims platforms. Third, when Ingenix customers send Ingenix a certain volume of data, Ingenix in turn provides those customers with a discount on data from the Ingenix PHCS database. CIGNA receives the maximum discount as a result of the data that it sends to Ingenix. Sending additional amounts of data would not result in any additional discount. Fourth, the claims platforms that CIGNA does not submit data from are minor claims platforms that only comprise a small fraction of the claims processed by CIGNA. Finally, based on the data that goes into the claims platforms, CIGNA has no reason to believe that sending data from Proclaim, CIGNA Claims, Medicom, Dentacom, and Power MHS, but not the remaining platforms, materially impacts the data it send to Ingenix”

Without production of the underlying factual or statistical evidence, CIGNA’s claim that “sending all its data would not materially impact the data sent to Ingenix” cannot be verified. It should be noted that this statement is not justified by the mere fact that these claims are only a small percent of CIGNA’s total claims. If the deleted claims are disproportionately high priced, and for CPT codes with few observations per zip code, a few claims could drastically change the percentile distribution and UCR estimate. Moreover, CIGNA only started contributing claims data to Ingenix from Power MHS (one of its two major claims engines) in 2009.

Similarly, in my supplemental expert report in Health Net dated June 15, 2006, I noted:

“proper statistical procedures require that Ingenix assess the completeness and accuracy of the data it receives from its Data Contributors and ensure that its rules are being followed. A Data Contributor database cannot be considered valid when there is inadequate data quality control in place.”

I have subsequently learned that in response to Ingenix's revised Data Submission Information form, although CIGNA certified that it "attests that the service zip code provided in service zip field (example: field #20 on Ingenix's recommended Record Layout) is populated with the zip code where services were rendered which is not necessarily the provider billing address zip code," Ingenix was aware as early as in 2001 that CIGNA could not supply the zip code where the service was rendered, but only the provider billing address zip code. Despite this, Ingenix used CIGNA data until 2009, when it discontinued using CIGNA data because of this problem.

I have also learned that, at some time, rather than submitting individual charges CIGNA submitted total charges and total number of occurrences to Ingenix for one of its claim processing data sets. Rather than discarding the data as useless, Ingenix considered the data as multiple charges, incorporating them all at the average. This approach obviously biases the UCR estimate down. For example, if there are only 10 charges in a zip code, and the charges average \$100, Ingenix would consider these to be 10 individual charges at \$100 each, and any charge in excess of \$100 would be considered to be above the 80th percentile. However, the \$100 average could be composed of five charges at \$110 and five charges at \$90; therefore, one-half of the charges would incorrectly be considered "atypical" of the charge distribution. To the extent that other contributors supplied aggregated data and Ingenix used the average values as it did for CIGNA, the methodology could actually seriously bias the distribution profiles used to compute R&C downward.

**C. Guardian Violated Ingenix's Data Contribution Requirements**

Guardian never contributed all of its available data. It produced no charge data relating to anesthesia procedures. Its Contributed Data was limited to certain CPT codes, and specifically excluded data relating to other CPT codes. Even as to the CPT codes it did contribute, Guardian failed to contribute provider-specific data fields (such as provider licensure, specialty, etc.) and patient-specific data fields (including the patient's age and gender). Except for three modifiers, Guardian's data excluded modifiers which were identified on the providers' billed charges.

**D. Aetna Pre-Scrubs Valid High Charges**

It is appropriate for a Data Contributor to edit out data errors. However, it is important that a Data Contributor does not pre-edit or pre-scrub out data to remove high charges which it labels "outliers." There are two reasons for this requirement. First, such pre-editing removes valid high charges and biases downward the Upper Percentile values in the collected data. Second, Ingenix's scrubbing process presumes and requires that the Contributed Data is not pre-edited or pre-scrubbed.

Aetna is Ingenix's largest data contributor. Its contributions to Ingenix are now 25% of the total data Ingenix receives. *See* Weil Gotshal letter dated December 17, 2009 to Aetna subscriber counsel. For at least two decades, Aetna has pre-edited or pre-scrubbed, its claims data according to its so-called Profiling rules. Aetna considers its Profiling rules mandatory. Aetna uses different Profiling rules according to whether a claim was processed by Aetna's automated adjudication ("AA") system or from manual claims processing (*i.e.*, after review by the medical review unit). The vast majority of Aetna's R&C determinations are made by its "AA" system. Aetna's AA Profiling rules state (in pertinent part):

**“Charges that exceed prevailing will be reduced and not profiled with action codes 617 or 657.**

**Charges that exceed prevailing but are within plan prevailing fee liberalization will be accepted but not profiled with action code 605”**

Aetna’s manual Profiling Guideline states (in pertinent part):

**“Do not profile situations where Edit 410 displays – submitted charge is less than half the prevailing fee.”**

**“Do not profile situations where Edit 401 displays – submitted charge exceeds prevailing fee by 150%.”**

Aetna’s use of Profiling rules such as those quoted above significantly and adversely impact the integrity of the Ingenix databases. Aetna is a major data contributor, contributing hundreds of millions of charge records each year to Ingenix. Ingenix claims to base its data on 450 million claim records per cycle. Aetna’s Contributed Data has been between 17-25% of the charges Ingenix has received since 2005. While Aetna contends that its Profiling rules did not automatically remove all claims in which the billed charge exceeded R&C from the data set it used to contribute to Ingenix (as well as create its own AMFS data), Aetna has nevertheless confirmed that it did use Profiling rules and that some charges were excluded based on the R&C value. While Aetna has yet to come forward with an adequate explanation and corroboration of how its Profiling rules applied over time, it is apparent that before Ingenix received the data, Aetna had pre-scrubbed the data using its internal Profiling rules. Aetna’s pre-scrubbing of data compromised the integrity and accuracy of the data contributed to Ingenix. The combination of pre-scrubbing by Aetna and scrubbing by Ingenix ensured that the data gathered and compiled would be incomplete.

**E. Ingenix’s Fails to Insist on Compliance with Its Rules or to Audit its Data Contributors and Ignores Problems in Contributed Data Even When It is Aware of Them**

Proper statistical procedures require that Ingenix assess the completeness and accuracy of the data it receives from its Data Contributors, and ensure that its contribution rules are being followed. A Data Contributor database cannot be considered valid when there is inadequate data quality control in place.

Despite the importance of Ingenix receiving all available “un-scrubbed” and market rate data (*e.g.*, excluding governmental payor data) from its Data Contributors, Ingenix took no steps to ensure that this occurred. Ingenix did not inquire or overlooked information as to how CIGNA, Aetna or other Data Contributors selected data, or whether they scrubbed it, or included non-market rate data. Aetna took from its interactions with Ingenix that it was free to pre-edit its data to weed out charges in excess of R&C. Significantly, Aetna informed Ingenix that it was pre-scrubbing its data using numerous Profiling rules. Ingenix did not inquire about these Profiling rules, and did not audit Aetna, but simply agreed to pretend that Aetna was submitting complete data. In fact, Ingenix agreed to change Aetna’s certifications (which admitted non-compliance) to read “yes” instead of “no.” Ingenix acknowledges that it is improper for Data Contributors to pre-scrub Contributed Data, but still took no steps to stop it, even when Aetna expressly informed Ingenix it was doing so.<sup>5</sup> Despite Ingenix’s understanding that pre-scrubbing biases the data, Ingenix used Aetna’s Contributed Data even though it had been pre-scrubbed and incomplete.

Even though its Data Contribution rules require submission of the entire universe of charge data, and Ingenix requires its Data Contributors to certify that they have submitted the entire universe of charge data, Ingenix knew that its Data Contributors (including CIGNA, Guardian and Aetna) continued to contribute less than all of their available data, pre-scrubbed their Contributed Data, and

---

<sup>5</sup> It is both possible and likely that other Data Contributors are pre-scrubbing their Contributed Data prior to sending it to Ingenix. CIGNA, for example, could not state with certainty that it did not pre-scrub its Contributed Data.



failed to submit information for all required data fields. Yet Ingenix ignored, and continues to ignore, these clear violations of its stated policy and its Data Contributors' admittedly false certifications. Neither Aetna, Cigna or Ingenix alerted data users that the previously compiled data violated its Data Contribution guidelines.

The following relevant chronology makes that clear:

1. Ingenix's pre-November 2004 contribution forms did not request, and Ingenix did not receive, Contributed Data reflecting the entire universe of provider data from its Data Contributors.
2. Commencing in November 2004, Ingenix changed its data contribution form to require each Data Contributor to certify that it was contributing the "entire universe of billed charges" and without alteration or pre-scrubbing.
3. Aetna, CIGNA and Guardian all signed the post-November 2004 certifications (as did other Data Contributors) despite continuing their prior practice of contributing less than the entire universe of billed charges from their claim systems.
4. Even when Aetna told Ingenix it was continuing to pre-scrub its data by using Profiling Rules, Ingenix accepted Aetna's pre-scrubbed data. Ingenix did not audit Aetna's contributions or assess the impact of Aetna's violation of Ingenix's stated rules. Ingenix did not take any steps to enforce its stated rules or inform data users that its Data Contribution rules were not being followed or enforced.
5. CIGNA also periodically advised Ingenix that its data did not differentiate between rendering provider (place of service) zip code and billing provider (place of billing) zip code. Despite CIGNA's demonstrated inability to report rendering provider zip codes, Ingenix did not



audit CIGNA and did not take any steps (at least until 2009) to ensure that its data was not being further compromised by CIGNA's noncompliant data.

6. Ingenix's attestation form and other certification requirements amount to meaningless gestures and failed to ensure statistical accuracy or compliance.

The collector of the data in a convenience sample is responsible for testing and verifying the data to ensure that it is not biased and to ensure that its convenience sample is in fact representative of the population of charges. Ingenix failed to properly insure that its rules were followed, and knowingly let CIGNA and Aetna (and presumably others) contribute data (which Ingenix then used) that failed to meet Ingenix's own rules and standards. Ingenix's agreement to let Aetna submit knowingly noncompliant data while changing the certifications to falsely indicate compliance is a striking example of knowing in the use of flawed and inadequate data.

## **II. INGENIX'S INVALID SCRUBBING METHODOLOGY (STEP 2)**

### **A. Common Data Created by Merger of PHCS and MDR Databases**

Ingenix merged the PHCS and MDR databases so that it uses a common data repository ("Common Data") used to create both MDR and PHCS data. The result of this merger is that both databases rely on Common Data. Ingenix applies the same edits and scrubs ("Common Scrubber") to the Common Data for both MDR and PHCS, and uses the same geozips for both MDR and PHCS, a change from prior years when different geozip groupings were used for MDR and PHCS. The MDR and PHCS final fee schedules differ as a result of differences in the final preparation of each database, after the Common Scrubber has scrubbed the Common Data. The PHCS and MDR 80th percentile values are different, despite Common Data and the Common Scrubber, because (i) PHCS reports "actual data" for some CPT codes in some geographic areas while MDR reports "derived" data for all CPT codes in all geographic areas; (ii) Ingenix uses

different methods of combining different CPT codes (*i.e.*, PHCS uses bodily systems to group CPT codes while MDR groups CPT code ranges); (iii) Ingenix uses different conversion factors (*i.e.*, relative values which measure the average level differences between charges among CPT codes) for MDR and PHCS Derived Data; and (iii) MDR uses an inflation factor to adjust data over time, while PHCS does not.<sup>6</sup> In creating Common Data, Ingenix uses MDR's grouping method and relative values.

#### **B. The Common Scrubber Used for Both MDR and PHCS**

MDR and PHCS are Contributor databases, meaning that the data used in them is entirely contributed by entities other than Ingenix. Data Contributors submit their data on tapes or disks, and transmit it to Ingenix. Ingenix then edits, or scrubs, the Contributed Data by contributor and computes the credit due to each contributor for submitting data for the PHCS database. Ingenix only gives credit for data that passes (*e.g.*, is not eliminated by) its scrubs. As I described in my prior report, Ingenix does an initial preliminary scrubbing to eliminate obviously invalid data entries. For example, Ingenix eliminates data with obvious keypunch errors (*e.g.*, a CPT code or a zip code which does not exist). This preliminary scrubbing is statistically proper and is not challenged.<sup>7</sup>

Ingenix uses other scrubs which create serious flaws. It groups together ranges of CPT codes and then subjects the Contributors' data to a method which scrubs and eliminates valid high charges

---

<sup>6</sup> The difference in 80<sup>th</sup> percentile values in its two databases demonstrates that the R&C amount is sensitive to various data manipulations.

<sup>7</sup> One of these preliminary scrubs was to eliminate all charges of \$1 or less. Significantly, Ingenix eliminated this \$1 charge scrub. Ingenix has chosen to rely on its low screen edit, inflating the number of charges eliminated from the low end. However, eliminating all charges of \$1 or less from Medical and Surgical services as obvious data errors was a better procedure than relying upon a so-called statistical edit.

as “outliers” which are deemed “unreliable.”<sup>8</sup> This method is inappropriate because it eliminates valid high charges.

The Common Scrubber reviews each data record contributed by the Data Contributor which has not already been eliminated (*e.g.*, because it contains modifiers).<sup>9</sup> The stated reason is that eliminated charges represent modifiers that would affect the way a provider bills. This procedure, by definition, means that this database cannot be used to assess the reasonableness of any medical charges submitted to an insurer with these modifiers. Charges associated with given CPT codes are grouped together based on numerical ranges of CPT codes. All charges for CPT codes within that CPT code range are combined and are subjected to a Common Scrubber formula.

In order to combine all of the charges for the different CPT codes within the CPT code range, Ingenix converts each charge by the relative value for that CPT code (*i.e.*, the adjusted or standardized data value is the actual charge divided by the relative value of its CPT code). The relative value is supposed to standardize (*i.e.*, account for) the differences in the average values of the charges among different CPT codes. This process, however, does not adjust for the spread from the mean of different procedures. All standardized charges in the CPT code range are then subjected to a high and a low formula. The two basic formulas to eliminate contributed data on the high end and low end, respectively are:

- (i) “Flag if charge is  $> RV \times \text{per } 80 \times \text{hifct}$ ”
- (ii) “Flag if charge is  $< RV \times \text{per } 50 \times \text{lowfct}$ .”

<sup>8</sup> Ingenix uses a Common Scrubbing Process on all the data contributed by data contributors to MDR and PHCS. According to Ingenix, there are only two minor exceptions where it does not do so, both with respect to the PHCS database.

<sup>9</sup> Ingenix’s Contributed Data includes charges originally billed with these modifiers. Some Data Contributors (including CIGNA and Guardian) contribute charge data but delete modifiers. They will be included in the database, whereas data with modifiers is excluded. Ingenix’s failure to audit its Data Contributors or to effect proper quality control over the Contributed Data causes indiscriminate and inconsistent treatment of charges billed with modifiers. Charges with modifiers are thus improperly compared to charges which were compiled without modifiers.

Translated, the high formula (*i.e.*, (i) above) means that Ingenix eliminates a contributed charge if it exceeds the product of the relative value for that CPT code multiplied by the 80<sup>th</sup> percentile for the combined data in the CPT code range (the “per 80”) multiplied by an arbitrary high factor number (hifct) determined by Ingenix<sup>10</sup>.

The per80 and per50 values for a particular CPT code range incorporate the charge data for a broad range of CPT codes combined together, and adjusted for average value or “level” among the CPT codes, but not adjusted for the differences in the spread of charges within each CPT code (measured statistically by standard deviation from the mean). Not adjusting for the spread of charges means the formulas do *not* consider the distinct distribution of charges for any particular CPT code (*e.g.*, infrequent, less common procedures will have greater spread from the mean than more frequently performed simple procedures; procedures performed by different types of providers will have greater spread from the mean than those performed by a single type of provider, etc.). Ingenix’s methodology rests on the assumption -- without proof or reason -- that the distribution of charges as to all CPT codes in the CPT code range is the same. In short, Ingenix uses relative values to standardize the data, but fails to account for their distribution as measured by standard deviations among charges in each CPT code range. Ingenix’s failure to account for standard deviations is a fundamental error and will incorrectly eliminate valid high charges in those CPT codes, especially when the spread of charges differs among the CPT codes.

To illustrate this, consider the following hypothetical:

**CPT Code 1:            1,000 charges, all \$50 (relative value equals 1)**

---

<sup>10</sup> The values of the high and low factors (“hifct” or “fee high” and “lowfct” or “fee low”) that are used in the Common Scrubber formula are arbitrary. Very similar high and low factor values have been in use since 1992. Ingenix uses 1.95 as the high factor for all medical procedures; 1.8 as the high factor for all radiology procedures; 1.88 as the high factor for all laboratory procedures; and 1.9 as the high factor for all surgical procedures.

**CPT Codes 2-10: 10 charges for each code, all with means of 100, but with significant variance in charges (relative value equals 2)**

**Assume the charges for CPT code 2 are as follows:**

**50, 50, 50, 50, 50, 50, 100, 150, 225, 225 (mean of 100)**

Because of the numerical dominance of CPT code 1, the per 80 value for the entire range of CPT codes 1-10 will be \$50. Thus, the Common Scrubber formula using a hifct of 1.95 will eliminate as unreliable outliers all charges for CPT codes 2 through 10 which exceed \$195 (*i.e.*,  $1.95 \times 50 \times 2$ ). Specifically, all charges above \$195 for CPT codes 2-10 will be eliminated, even though such charges are valid and not unusual for the particular CPT code. For example, for CPT code 2, the two \$225 charges would be eliminated as unreliable (*i.e.*, because they exceed \$195). They are eliminated even though they are valid charges, and are not unusual for the particular CPT code (*i.e.*, they reflect 20 percent of the charges).

The 10 charges noted above for CPT 2 (\$50, \$50, \$50, \$50, \$50, \$50, \$100, \$150, \$225, \$225) could reflect differences in provider qualifications. In other words, the \$50 charges may reflect charges billed by a physician assistant, while the higher charges (\$100, \$150 and two at \$225) may reflect charges billed by a medical doctors or medical specialists (*e.g.*, cardiologists). Elimination of the two \$225 charges is incorrect and skews the data downward.

The Common Scrubber is applied without regard for provider specialty, training, experience, expertise or qualifications, such as whether a provider is a physician or not, and regardless of the type or place of service. As might be expected, higher priced charges within a CPT code may reflect such things as increased complexity, impaired patient health, or greater provider qualifications or experience. By combining charges for CPT codes, adjusting only for the difference in level and not

for standard deviation among charges for each CPT code, high charges which are valid and usual are regarded as unreliable outliers, and are eliminated from the Common Data, thereby skewing downward the Upper Percentile values in the final Ingenix data.

**C. The Dental Data Example Proves Ingenix Systematically Understated R&C at the Upper Percentile Values**

On August 24, 2001, Jill Faddis, a CIGNA subscriber, faxed questions to Carla Gee of Ingenix relating to her husband's R&C reimbursement for a dental procedure performed by a periodontist. The billed charge was \$140 while the R&C reported by the PHCS database was less than half that amount (\$65). The fax also included her survey of periodontists listed in the yellow pages giving their rates for the identical procedure codes (see Exhibit 14 Ingenix 00857). On October 31, 2001, Ms. Faddis sent a follow-up letter and survey, stating:

"I have identified the problem. The dentists and periodontists are using the exact same codes for their service even though the service is not the same...It is obvious to me now that when Ingenix and other such data collecting companies comprise their data, they do so by looking at the codes and coming up with figures that represent the vast number of bills charged by dentists which far outweigh those bills charged by periodontists. This is an outrage and certainly not accurate."

She asked Ingenix to explain why the final Ingenix R&C amounts for two particular CDT codes were both \$65 when her survey of billed charges by periodontists in her geographic area reflected higher charges than on the Ingenix data. (The surveyed charges for CDT codes 0140 and 0150 ranged from \$110 to \$163 compared to the PHCS 90th percentile of \$65 for each CDT code.)

Ingenix reported that it had been incorrectly scrubbing out between 3-5 percent of charges, mostly from the high end. By eliminating charges for being "too high," Ingenix eliminated precisely the data it should be capturing. Even though Ingenix concluded that legitimate high charges had

been scrubbed by Ingenix's Common Scrubber, it did not undertake any further analysis of the data, or otherwise take any effort to remedy the elimination of valid high charges.<sup>11</sup>

It then restored the charges and recomputed the R&C. Even after adding back in the scrubbed out high charges, the 90<sup>th</sup> percentile value for D0150 only increased by \$2, from \$65 to \$67. The 90<sup>th</sup> percentile value after Ingenix restored the scrubbed out high charges and re-computed the values increased 15 percent, from \$65 to \$75. Jill Faddis's survey demonstrates the inadequacy of the Ingenix data. For CDT D0150, Ms. Faddis's survey shows the following charges: \$140; \$125; \$125; \$163; \$162; \$162; \$140; \$110; \$125; \$130; \$149. (Her periodontist charged \$140.) Ingenix reported that its PHCS data for CDT code D0150 reflected charges ranging from \$16 to a high of \$125. Thus, 7 out of 11 periodontists charged *above* \$125, the highest charge appearing in the PHCS data; 3 out of 11 periodontists charged \$125, and only 1 out of 11 charged *less* than the highest charge (\$110).

Ingenix reported that the charges for CTD code D0140 ranged from \$16 to \$120. For CDT D0140, Ms. Faddis's survey shows the following ten charges for periodontists in her area: \$90; \$90; \$90; \$103; \$106; \$106; \$98; \$60; \$92; \$100. The average charge in her survey for CDT code D1040 is \$103.50. Moreover, nine out of 10 periodontists in Ms. Faddis's survey charged significantly *above the 90<sup>th</sup> percentile value* both before and after the scrubbed out high charges were restored.

There are various reasons why the 90<sup>th</sup> percentile still drastically understates the typical charge, even after correcting for the error in scrubbing out valid high data: *first*, Data Contributors (such as Aetna) may have pre-scrubbed out periodontist charges for this procedure from their Contributed Data, or may have simply failed to contribute all of the available claims data, such that

---

<sup>11</sup> Although Ingenix became aware of this phenomenon, it failed to evaluate, track its impact on any other CDT or CPT codes or disclose or reimburse subscribers for the underpayments. As the producer of this data, Ingenix reneged on



most periodontist charges for these CDT codes were not submitted to Ingenix; *second*; the Insurers who manage the claims for the periodontists in these areas may not be Data Contributors; and *third*, because dentists bill the same CDT code but charge much less (i.e., \$64 in Ms. Faddis's survey), and there are many more dentists than periodontists, the lower-priced dentist charges swamp the higher periodontist charges, skewing down the values even at the 90<sup>th</sup> percentile. (To the extent dental assistants and other ancillary providers are able to bill for CDT 0150 or CDT 1040, this phenomenon will be even more pronounced.) The end result is that the Ingenix data skewed the Upper Percentile values downward.

The same phenomenon illustrated by Ms. Faddis's survey of periodontists and dentists occurs for all types of procedures in all geographic areas. This data confirms my opinion that by failing to collect all available data (by pre-scrubbing or otherwise), by scrubbing out valid high charges, and by indiscriminately combining charges from various types of services without any consideration of provider qualifications or the type of service provided (within the CPT code), Ingenix understates the Upper Percentile values in the Ingenix databases.

**C. The Scrubbing of High Charges is Not Balanced Out by Scrubbing Low Charges, and Biases the Data**

As I discussed in my prior report, Ingenix's scrubbing of some charges on the low end is not balanced by its scrubbing of charges on the high end. Even if Ingenix edits out more low than high charges, the scrubbing of high charges still skews the database downward.



Assuming that the statistical edits were equally likely<sup>12</sup> to remove valid high and valid low charges, the result would bias the Upper Percentile values downward. Even removing many more valid low charges than valid high charges may not offset the effect of removing high charges and biasing the Upper Percentiles downward.

This fact is illustrated by the following hypothetical case: Consider a case in which we have 100 valid observations in rank order, so the 80<sup>th</sup> observation is the 80<sup>th</sup> percentile. All the observations represent valid charges. Suppose we eliminate the top 20 percent of the observations through pre-screening (as Aetna does) or scrubbing of the data. As a result, the 100<sup>th</sup> percentile of the screened data is what had been the 80<sup>th</sup> percentile, which is the true 80<sup>th</sup> percentile. No matter how many low values are pre-screened out (assuming, of course, that some data remains after scrubbing) the reported 80<sup>th</sup> percentile will be lower than the true 80<sup>th</sup> percentile, since the true 80<sup>th</sup> percentile will always be the reported 100<sup>th</sup> percentile.

Similarly, consider the following hypothetical example: 100 charges are numbered consecutively between 1 – 100. As a result of the editing, assume that all 10 charges between 91 and 100 are deleted from the high end, and all 30 charges from 1-30 are deleted from the low end. This hypothetical thus assumes that Ingenix is scrubbing out three times as many low charges (30) as high charges (10). Even so, the elimination of one-third as many high charges still skews the 80<sup>th</sup> percentile value downward.

After scrubbing the 30 charges from the low end and the 10 charges from the high end in this hypothetical, 60 charges remain, from 31-90. The 80<sup>th</sup> percentile of the scrubbed charges is 78

---

<sup>12</sup> Given that one would expect the percent distribution of charges to be skewed to the right (larger values) (*i.e.*, it is more likely to see a valid charge twice the mean charge than one-half the mean charge), one would expect more high valid charges than low valid charges to be incorrectly removed.

(.8\*60+30). Thus, even where Ingenix edited out three times as many low charges as high charges, the statistical effect of removing high charges is to skew the database downward. .

### III. PUBLICATION AND ANALYSIS OF FINAL FEE SCHEDULES (STEP 3)

Only the Common Data that the Common Scrubber does not eliminate is used to create the final Ingenix database fee schedules.

#### A. PHCS Actual Data

Ingenix creates PHCS fee schedules by taking the Common Data that the Common Scrubber did not eliminate for each CPT code, with only minor exceptions. If there are nine or more occurrences (*e.g.*, charges), then Ingenix considers the data to be “actual data” and reports the actual data at each percentile (*i.e.*, 50<sup>th</sup>, 60<sup>th</sup>, 70<sup>th</sup>, 75<sup>th</sup>, 80<sup>th</sup>, 85<sup>th</sup> and 90<sup>th</sup> along with the mean and the mode charges.) The PHCS database reports “actual” data for only 10 percent of all CPT codes, and derives data for approximately 90 percent of all CPT codes. Ingenix states that 90 percent of the Contributed Data is attributable to 5 percent of CPT codes, leaving an insufficient number of “actual” charges for the vast majority of CPT codes.

#### B. PHCS Derived Data

Ingenix derives data for PHCS for each CPT code in which fewer than nine charges passed the Common Scrubber for that geographical area (geozip). Ingenix groups together broad CPT ranges into a bodily system. (There are 15 surgical, 15 anesthesia and 26 medical service bodily systems.) For example, Ingenix considers all CPT codes from 40490 to 43499 to be in the same bodily system (“upper digestive system”). There is wide diversity among these CPT codes, ranging from the simple repair of lip (CPT 40490, rv of 5.50) to the very complex (esophagectomy, CPT 43116, rv of 240). The data that passed the Common Scrubber for all CPT codes in a bodily system in the

geographic area is used to derive the data for the CPT codes in each bodily system with fewer than 9 charges. To create the 80<sup>th</sup> percentile for a CPT code with fewer than 9 reported charges, Ingenix first computes the 80<sup>th</sup> percentile for charge data from all CPT codes within a bodily system and area. In order to combine across different CPT codes within a bodily system and area, Ingenix adjusts each charge using the RVs from Relative Value Studies, Inc. (“RVSI”). That is, each charge is divided by RVSI’s RVs (these RV values are different from those used in the scrubbing process) and referred to as “converted” charges. That is, if one CPT has a relative value of 2 and another has a relative value of 4, the average cost of charges in the second CPT is twice (4/2) that of the first.

The 80<sup>th</sup> percentile value for the adjusted charge data for the bodily system is then calculated. This is referred to as the “converted 80<sup>th</sup> percentile.” This value is then used to derive the 80<sup>th</sup> percentile value for all CPT codes with fewer than nine observations in the same bodily system and area. This is done simply by reconvert the converted 80<sup>th</sup> percentile to adjust the average level of the specific CPT code that the derived data represents. Specifically, the derived 80<sup>th</sup> percentile for the CPT code would be the converted 80<sup>th</sup> percentile for its bodily system times RVSI’s RV for that CPT code. Ingenix uses the same method to derive each percentile for each CPT code in that bodily system and area in which fewer than nine data points pass Ingenix’s scrubbing process.

### **C. MDR Reported Data**

Ingenix derives MDR data from the Common Data using the same methodology as for the PHCS derived data. Ingenix uses different relative values, and combines different ranges of CPT codes, but the methodology for deriving data between MDR and PHCS is the same.

The CPT code book groups together CPT codes for a procedure from the simplest to the most complex. Sequentially numbered CPT codes, therefore, reflect both simple and far more complex

procedures. Ingenix states that it wanted to change its current system to use more similar, non-contiguous, non-sequential CPT code ranges. Despite this recognition, Ingenix has only used this method to calculate conversion factors in its HCPCS database and not for its other databases (medical/surgical, anesthesia, dental, etc.).

This process of combining CPT data together to conduct analyses and then breaking the results back out to specific CPT codes is similar to what Ingenix does in its Common Scrubbing process. Just as with the Common Scrubber, Ingenix's process for computing derived data for both MDR and PHCS Derived Data assumes that the distribution of charges among all CPT codes in a bodily system are the same, and fails to account for standard deviations in the charges for each CPT code.

**D. The Methodology For Creating Derived Data for CPT Codes with Fewer Than Nine Occurrences Is Statistically Invalid, and Biases Downward the Upper Percentile Values for PHCS and MDR Data**

The key to combining data across a range of CPT codes is standardization of the charge data. Proper standardization enables the meaningful combination and comparison of charges across different CPT codes. When combining data across a range of CPT codes, Ingenix must standardize the data to account for the differences in the level and spread of charges among CPT codes. Data standardization by level and spread is a common issue for statisticians.

There are proper well-known statistical methodologies for combining data with different means and variances. For example, if the data in each CPT code had been standardized by its relative mean and relative standard deviation, the data could be combined and then unwound by reversing the process. Assuming adequate and proper data (a requirement not satisfied in either

MDR or PHCS), such a methodology could estimate each CPT's percentile distribution from the combined data.

By proper standardization, considering differences, both the relative levels and the relative standard deviations, the 80<sup>th</sup> percentile value in one CPT becomes equivalent to the 80<sup>th</sup> percentile value in every other CPT code, and all the combined data is comparable. However, if one standardizes only for level, the only combined values that are actually comparable are the average values. Since R&C involves knowing the Upper Percentiles, all the combined data must be comparable, unbiased estimates of the Upper Percentile values.

Ingenix, however, standardizes only for level by using the RV. For example, if the charges in CPT code 1 are, on average, twice that of those in CPT 2, then the charges in CPT code 2 are simply doubled (or conversely, those in CPT code 1 are divided in half). Then, Ingenix groups them and the difference in the average level of charges between the two CPT codes is accounted for in the combined charge data.

Because Ingenix fails to consider that some CPT codes have a wider distribution of charges (*i.e.*, standard deviation) than others, the derived percentiles understate the true higher percentile value for these CPT codes. This is a particularly significant problem because those CPT codes with a large number of cases tend to be the most common and to have the smallest standard deviation, while the CPT charges with a lower frequency of charges tend to have a greater standard deviation.

That is, Ingenix's flawed method of combining data without proper standardization groups together data relating to numerous procedures so that the more common, less expensive procedures, which typically have little variation, will dominate in number compared to the more specialized and less common CPT codes. As a result, when the data is combined based only on the relative value of

charges, almost any charge above the mean in the less common CPT codes with a higher relative standard deviation can appear to be unusually high.

Consider the following simplified hypothetical:

[Note: The underlined value is the 80<sup>th</sup> percentile of each distribution.]

CPT 1: charges 9, 9, 10, 10, 10, 10, 10, 10, 11, 11 Average = 10

CPT 2: charges 50, 50, 50, 100, 100, 100, 100, 150, 150, 150 Average = 100

Combining

the two CPT codes using RV of 10 for CPT 2 yielded:

5, 5, 5, 9, 9, 10, 10, 10, 10, 10, 10, 10, 10, 11, 11  
15, 15, 15

Thus, the combined 80<sup>th</sup> percentile is 11, which translates back to 11 for CPT1 (11 x RV of 1) and 110 for CPT2 (11 x RV of 10). Therefore, the three 150 charges in CPT2 (which are actually the 70<sup>th</sup> percentile for CPT 2) are now classified as being above the 80<sup>th</sup> percentile for the combined data set.<sup>16</sup> By failing to account for the standard deviation in the charges for CPT2, Ingenix's methodology skews the 80<sup>th</sup> percentile value downward from 150 to 110.

Also, consider the following hypothetical:

### Hypothetical

CPT 1				CPT 2			
RV = 1				RV = 2			
Charge	Adjusted Charge	Frequency		Charge	Adjusted Charge	Frequency	
	(1)	(2)			(1)	(2)	
150	150	79		220	110	4	

<sup>16</sup> Note: the "converted" 50<sup>th</sup> percentile is 10, which correctly translates back to 10 (10 x 1) for CPT code 1 and 100 (10 x 10) for CPT code 2.



<u>160</u>		<u>160</u>		21		300		150		2
152		152		Avg. Chg.		380		190		2
						<u>400</u>		<u>200</u>		2
						304		152		Avg. Chg
<b>CPT 3</b>						<b>CPT 4</b>				
<b>RV = 3</b>						<b>RV = 4</b>				
		Adjusted						Adjusted		
Charge		Charge		Frequency		Charge		Charge		Frequency
		(1)		(2)				(1)		(2)
330		110		2		490		123		2
450		150		1		<u>647</u>		<u>162</u>		6
570		190		1		608		152		Avg. Chg
<u>600</u>		<u>200</u>		1						
456		152		Avg. Chg						

All Adjusted Charges	
Value	Frequency
	(1)
110	6
123	2
150	82
160	21 80 <sup>th</sup> Percentile
162	6
190	3
200	3

In this hypothetical, 80 percent of the charges in CPT code 4 and 20 percent of the charges in CPT codes 2 and 3 would incorrectly be deemed to be unreasonable, based on using the incorrect derived 80<sup>th</sup> percentile as the R&C value.

## VI AETNA'S USE OF ITS OWN DATA OR MEDICARE TO DETERMINE R&C

In instances where Ingenix actual data in a particular geographic area was not available, Aetna's internal policies dictate that Aetna could use Ingenix national data (both actual and derived). Clearly an unadjusted national number cannot satisfy the geography-specific definition of R&C.

In instances where no Ingenix data was available, Aetna used other data to determine R&C amounts. For example, Aetna used its internal data to create what it referred to as Aetna Market Fee Schedule ("AMFS") data. Just as with the data it contributed to Ingenix, however, the AMFS data was pre-scrubbed using Aetna's Profiling Guidelines and so it edited out valid high data that should have been captured and reflected (but was not) in AMFS.

In other instances, Aetna used a percentage of Medicare to determine R&C. For example, in some instances Aetna used 125% of Medicare, and in others it used 75% of Medicare. However, Medicare is a budget-driven number and does not, and cannot, satisfy Aetna's definition of R&C. Thus, using Medicare data to define R&C is statistically invalid.

## VII CALCULATION OF UNDERPAID PLAN BENEFITS

Assuming Aetna maintains historically its electronic database which processed claims Aetna should be able to calculate and reimburse underpaid plan benefits resulting from use of the Ingenix database or other invalid R&C payment using its computerized system to reprocess claims by subtracting the invalid R&C payment from billed charges.

## CONCLUSION

After reviewing Ingenix's methodology (including data contribution editing and deriving percentile calculations), I conclude that the Ingenix databases are invalid for use by Aetna to determine R&C. Aetna's use of outdated data and of its own internal data or a percentage of Medicare are also invalid methods to determine R&C.

Dated: Philadelphia, PA  
April 6, 2010




---

Bernard R. Siskin, Ph.D.



# **EXHIBIT D**

**REPORT**  
**in the matter of**  
**AETNA UCR LITIGATION**  
**by**  
**Bernard R. Siskin, Ph.D.**  
**Director**  
  
**LECG**  
**Philadelphia, PA**

In my report I note the various statistical methodological flaws in the PHCS database construction: (i) auditing or lack of auditing data from data contributors, (ii) scrubbing or editing data, (iii) failure to consider relevant factors that would be expected to affect prices and must be considered to define the population of comparable charges (e.g., qualifications, training, experience, place and type of service), and (iv) combining charges across CPT codes when computing derived charges.

I have been asked to review Dr. Daniel J. Slottje's report and to comment regarding whether or not it results in any changes in my opinion. It does not. Without the underlying data I can only discuss the conceptual issues and problems. In order to be able to comment more fully, I would need both the databases and the programs used by Dr. Slottje for his report.

Dr. Slottje does two studies which purport to address the issues I raise. The first study compares the 75<sup>th</sup> percentile from the PHCS database to the 75<sup>th</sup> percentile derived from the Physicians Fee Reference Pricing Program (PFR). Under any circumstances such a review cannot address the third point listed above. Thus, PHCS does not report distributions by the qualifications, training or experience of the provider or by type or location of service. If PFR does so, then it is not clear how Dr. Slottje is making his comparisons. If they do not do so, then Dr. Slottje's study does not address any of these concerns. Moreover, without detailed knowledge of the data collection and

-2-

tabulation methodology, one cannot determine if the PFR data has the same methodological issues in data collection and editing of data. The only description of the source and volume of data incorporated in the PFR was presented by Dr. Robin Cantor: “Fee information contained in the PFR is based primarily on the results of our annual independent direct mail confidential survey which was conducted in the fourth quarter of 2005. Survey participants included physicians, group practices, office managers, medical billing services, clinics, universities, hospitals, health care administrators and medical practice management consultants. Secondary sources included purchased data from claims clearinghouses.”<sup>1</sup> This description does not specify the volume of data included. Without detailed knowledge of how the survey respondents were selected, the nature of the survey instrument, the response rates, and how the data was edited and processed, one cannot attribute any meaning whatsoever to the comparison made by Dr. Slottje.

The second study Dr. Slottje produces is a comparison of the un-scrubbed UHC data and the PHCS product. In this comparison, Dr. Slottje purports to study two things. First, he purports to compare the relative values of the PHCS and the UHC data. He states that, since UHC does not pre-screen, if others pre-screened out valid high charges, he would expect to find the 80<sup>th</sup> percentile of PHCS always (or almost always) lower than UHC. Secondly, this study also purports to test the PHCS scrubbing of the data. If the PHCS tend to scrub out valid high charges, we would expect to find the un-scrubbed UHC data to be higher than the PHCS data. With respect to this latter hypothesis, it is unclear why Dr. Slottje did not simply compare the un-scrubbed UHC data to the data UHC included.

---

<sup>1</sup> See Yale Wasserman, D.M.D. Medical Publishers, Ltd. 2006. *Physicians' Fee Reference 2006*. Milwaukee, WI: Yale Wasserman, D.M.D. Medical Publishers, Ltd. At p.1.

-3-

Putting this aside, nothing Dr. Slottje presents addresses the impact of failure to consider provider type and specialty or type and location of service. It is interesting to note that Dr. Joskow did a study of AETNA data and reported the impact of failing to consider these factors. His findings are summarized below:

**COMPARISON OF “BUT FOR” PERCENTILE WHICH CONSIDERS  
PROVIDER ZIP, TYPE AND SPECIALITY AND PLACE OF SERVICE  
TO INGENIX’S PERCENTILE**

Joskow Exhibit	Number of Class Member Claim Lines Where the “But for” UCR is		
	Greater	Same	Less
10	89	0	11
11	41	1	26
12	1,037	4	210
14	74	0	15
Overall:			
Number	1,241	5	262
Percent	82.3%	0.3%	17.4%

Source: Dr. Joskow’s report.

It also is not clear why one would use such a convoluted analysis to test something that is obviously true (i.e., that pre-scrubbing which excludes valid high charges biases the data). If one improperly screens out valid high charges, then it follows that inclusion of these charges would only increase the 80<sup>th</sup> percentile in those CPT geo-zips where such charges exist. Given that this must be true to at least some extent, the inability of crude statistical measures<sup>2</sup> to discern it does not then

---

<sup>2</sup> The wide variance between UHC and PHCS results by chance reduces the power of such a comparison and, thus, it has insufficient power to detect the real effects caused by pre-scrubbing and scrubbing the data.

-4-

make it false.

Moreover, if Dr. Slottje wishes to test whether some screening process has an impact, I cannot understand why he does not study it directly. For example, AETNA uses a 150 percent and 50 percent pre-screen criterion (similar to what PHCS also uses) to screen out high and low outliers. As I noted in my report, such a mechanical process may in fact eliminate valid high and low charges and incorrectly bias the data, which in my opinion would tend to understate UCR. In fact, Dr. Joskow looked at this issue for some AETNA data, and his findings confirmed my opinion that such screening would tend to lower the UCR.

#### **EFFECT ON UCR OF 150 PERCENT/50 PERCENT PRE-SCREENING OF DATA**

<u>Paragraph of Dr. Joskow's Report</u>	<u>Lowers UCR</u>	<u>No Effect on UCR</u>	<u>Increases UCR</u>
119	95	287	3
121	14	43	11
122	38	330	2
122	11	41	8
Overall:			
Number	157	701	24
Percent	17.8%	79.5%	2.7%

Finally, I noted in my report that, when combining data across CPT codes with differing variances in charges, the process will result in overstating<sup>3</sup> the UCR for the distribution with the larger standardized variance and understating<sup>2</sup> the UCR for the distribution with the smaller standardized variance. Dr. Slottje states in Section V of his report that there is heterogeneity in the

---

<sup>3</sup> Or having no affect due to rounding or ties across the UCR percentile (e.g., the 80 to 85 percentile chosen are the same).

-5-

variance among changes across CPT - geo-zip. This finding serves to confirm that such a bias will exist, even though his crude comparisons will fail to note it.

In sum, nothing in Dr. Slottje's report alters my opinions expressed in my prior report.

A handwritten signature in cursive script, reading "Bernard R. Siskin".

---

Bernard R. Siskin, Ph.D.

Dated: 4/30/10

# **EXHIBIT E**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY

---

IN RE: AETNA UCR LITIGATION,

This Document Relates To: ALL CASES

)  
)  
)  
)  
)  
)  
)  
) MDL NO. 2020  
)  
) Master File No. 2:07-CV-3541  
) (FSH) (PS)  
)

---

**EXPERT WITNESS REPORT OF GORDON RAUSSER, PH.D**



Table of Contents

I. Scope of Analysis ..... 1

II. Qualifications ..... 5

III. Summary of Opinions ..... 7

IV. Background: Description of Market ..... 14

V. Discussion ..... 20

    A. *Opinion #1*— The Benefits to Defendants of Coordination Far Outweighed Any Costs..... 20

    B. *Opinion #2*— The Databases Maintained and Published by Ingenix Provided an Effective Means of Suppressing Reimbursement for Out-of-Network Services..... 22

    C. *Opinion #3*— Defendants Had Market Power and Were Able to Suppress Reimbursements Due to Their Monopoly in the Data Market, Their Large Shares in the Health Insurance Market, High Barriers to Entry, Extreme Information Asymmetries and Inelasticity of Demand for Health Insurance Coverage..... 27

    D. *Opinion #4*—Plus Factors Confirming the Existence and Viability of the Conspiracy Include Commoditization of the Underlying Products, Efficient and Complete Price Communication Among Defendants, And the Absence of any Threat of Disclosure or Competition by Non-Complying Insurers ..... 34

    E. *Opinion #5*— Defendants Acted Against Their Unilateral Self Interest by Failing to Disclose and Compete Based Upon UCRs as They Do With Other Policy Provisions..... 40

    F. *Opinion #6*— The Result of Defendants’ Conduct is Suppression of Reimbursements Paid to Class Members for Out-of-Network Services; This Impact Can be Proven with Information Common to the Class ..... 43

VI. Conclusion ..... 45

## **I. Scope of Analysis**

1. This litigation pertains to the common practice by health and dental insurers of capping their reimbursements based upon what they represent to be “usual, customary and reasonable” rates charged by health service providers in the local community. These limitations are applied when plan members (insureds) choose to visit a doctor, hospital, dentist or other health care provider who is not on the insurer’s list of “preferred providers” (i.e., those with whom the insurer has already negotiated binding fee schedules). Although health plans using a Preferred Provider Organization (“PPO”) or Point of Service (“POS”) structure agree to cover these “out-of-network” services, the rate of reimbursement they provide may be dramatically different than for comparable “in-network” services. Members of such plans are typically told that the maximum “allowable” claim will be based upon the lower of the “usual, customary and reasonable” (UCR) rate charged by others in the area, or upon the amount actually billed and submitted for reimbursement. If the UCR is less than the billed charge, then the difference between the two is excluded from coverage, and the benefit is paid based on the lower UCR, after applying coinsurance, deductibles or other charges that may be the insureds’ responsibility.

2. As it turns out, however, the UCR applied by insurers, and supplied to them by defendant Ingenix, is neither usual nor customary and instead is subject to systematic downward bias.<sup>1</sup> As a result, the UCR operates as a binding cap on the amount an insurer will reimburse to either the health care provider or the insured. When the Ingenix database reflects a number lower than the billed charges--leading to an amount excluded from coverage--the result is an

---

<sup>1</sup> Plaintiffs’ expert Bernard Siskin has evaluated the UCR database and notes that Defendant Ingenix’s “scrubbing” methodology “skews downward the amounts reported by the Ingenix databases for the percentiles at and above the 70<sup>th</sup> percentile.” Expert Report of Bernard R. Siskin dated April 6, 2010, submitted herein. (Hereinafter “Siskin Report”).

underpayment by the insurer. Even this UCR amount is rarely paid out by the insurer, as coinsurance and deductibles (inapplicable to in-network services) further reduce the actual reimbursement.

3. I understand that the instant case is one of a series of lawsuits and administrative and enforcement proceedings that have exposed the practice of artificially suppressing UCRs through a database employed by the majority of U.S. health and dental insurers. This database was, until its forced divestiture in partial settlement of a state investigation, owned and operated by Ingenix, Inc. which was, itself, the wholly-owned subsidiary of UnitedHealth Group, one of the country's largest health insurers.<sup>2</sup> In 1997 and 1998, Ingenix bought up the various data products then available in the market and consolidated its control over the publication of health provider charge information.<sup>3</sup> Indeed, Congressional testimony from health care executives indicates that there have been "no alternative sources of national health care charge databases."<sup>4</sup> Data used by Ingenix to arrive at its published rates comes from over a hundred insurers<sup>5</sup> who agree to continuously "contribute" their data on claims submissions in exchange for deep discounts on the cost of the resulting Ingenix publications.<sup>6</sup> Substantial evidence shows that this data was manipulated and, in some cases systematically purged, by insurers before its

---

<sup>2</sup> Wojcik, Joanne, "New database to replace Ingenix," Business Insurance, November 2, 2009, <http://www.businessinsurance.com/article/20091101/ISSUE01/311019972>.

<sup>3</sup> United States Senate, Committee on Commerce, Science, and Transportation, Office of Oversight and Investigations. *Underpayments to Consumers by the Health Insurance Industry*. Staff Report for Chairman Rockefeller, June 24, 2009, pp. 3-4. (hereinafter, "Senate Staff Report").

<sup>4</sup> Senate Staff Report, p. 4.

<sup>5</sup> "As of December 31, 2009, Ingenix's customers include approximately 6,000 hospitals, 245,000 physicians, 2,000 payers and intermediaries, 200 Fortune 500 companies, 655 life sciences companies, 350 government entities, and 135 United Kingdom Government Payers, as well as other UnitedHealth Group businesses." UnitedHealth Group, Inc., Form 10-K, fiscal year ended December 31, 2009, p. 7.

<sup>6</sup> "Based on its agreement with HIAA in 1998 and continuing today, Ingenix gives discounts to Aetna and its Co-Conspirators for supplying it with the pricing data it scrubs to fabricate UCR rates." Second Joint Consolidated Amended Class Action Complaint and Demand for Jury Trial, In re: Aetna UCR Litigation, MDL No. 2020, Master File No. 2:07-CV-3541 (FSH) (PS), ¶188. (Hereinafter, "Second Amended Complaint").

submission to Ingenix, and was once again manipulated by Ingenix in a manner that produced artificially low UCRs.<sup>7</sup>

4. I understand that this action consolidates claims brought against various health insurers operating under the “Aetna” brand, as well as against Ingenix and its parent UnitedHealth Group. The claims are similar to those asserted against CIGNA insurance companies in Case No. 07-CV-6039 pending before this Court. I have been retained by counsel for the plaintiffs in each of these two cases to evaluate facts relevant to their antitrust claims brought under Section One of the Sherman Act which are relevant to the upcoming motion for class certification. In particular, I have been asked to evaluate 1) the benefits and costs to defendants of engaging in coordinated action to artificially suppress UCRs, 2) the feasibility of using Ingenix’s Prevailing Healthcare Charges System (PHCS) and its Medical Data Resource (MDR) product to accomplish this objective, 3) whether defendants and their alleged co-conspirators – using the coordinating facility of Ingenix – had the power to suppress UCRs, 4) the presence or absence of various “plus factors” often relied upon by courts as indicators of the viability of an antitrust conspiracy, 5) actions taken by the defendants that are against their unilateral self interest and thus are economically irrational in the absence of the conspiracy, and 6) the impact that would have been experienced by class members assuming the allegations of the complaint to be true, and whether this impact can be proved with shared evidence rather than through individual inquiry. I have not been asked to examine the question of damages, which I understand is addressed in the separate report of Stephen Foreman, Ph.D., JD, and MPA.

5. I understand that the Class in this case consists of three groups of stakeholders affected by coordinated UCR suppression. The first are the individual subscribers to Aetna

---

<sup>7</sup> Ingenix “scrubbing” “skews downward the amounts reported by the Ingenix database for the percentiles at and above the 70<sup>th</sup> percentile” and “Aetna pre-scrubs valid high charges,” Siskin Report, pp. 6, 15-16, 20-33.

health and/or dental plans (“subscribers”) who obtain medical or dental services out-of-network and assume the responsibility to pay for them. The second are the physicians and other health care professionals and institutions who provide these services (“providers”). The Class definition specifically limits participation to those who have obtained or supplied covered services for which Aetna paid less than the billed amount based upon a UCR. To the extent that the UCR applied by Aetna was lower than the actual rates customarily charged by providers in the same community, this shortfall results in unpaid charges which will either be met by the insured subscriber or absorbed as a loss by the health care provider. The total amount of under-reimbursement therefore reflects the economic loss suffered by both subscribers and their health care providers, which will then be allocated among them. The Complaint further specifically limits the provider subclass to those who were paid less than their billed charge, and thus assures that doctors or other healthcare professionals who managed to recover the under-reimbursement from their patients will not inadvertently be included within the class. The third group of class members consists of various professional associations, such as the American Medical Association, who act in the interest of health care providers and have been instrumental in shining a spotlight on the problem of UCR usage, thus incurring significant costs in their investigative, educational, advocacy and legal efforts. The balance of this report focuses on the coordinated actions of defendants and their co-conspirators and how those actions have directly impacted the subscriber and provider subclasses.<sup>8</sup>

6. In the course of my analysis, I have relied upon a wide array of data and information sources. Significant information about the manipulation of UCRs has already been

---

<sup>8</sup> I understand based upon my review of the Second Joint Consolidated Amended Class Action Complaint that each of these subclasses is further divided based upon the applicability of specifically pleaded legal claims (e.g., ERISA, RICO, state law provisions). Because my focus has been on the coordinated actions taken by defendants to suppress UCRs across the United States, I do not further address these subdivisions of the class.

collected by the Committee on Commerce, Science, and Transportation of the United States Senate in a nationwide investigation which culminated in the issuance of a staff report on June 24, 2009. My analysis takes into consideration the information obtained and conclusions reached by that Committee. Similarly, considerable factual information was obtained through a more than year-long investigation undertaken by the New York State Office of the Attorney General, which found that insurers using Ingenix UCRs systematically under-reimbursed New York consumers by up to 28%.<sup>9</sup> That investigation has led to settlements in New York with at least eleven insurers including Aetna, which paid \$20 million.<sup>10</sup> I have also referred to and relied upon various insurance industry data such as premiums underwritten, which are required to be reported to state regulators and are routinely compiled for use by the public, regulators, analysts and investors. Both industry publications and academic literature provided further context for my analysis. Finally, I have reviewed the expert reports of Dr. Bernard Siskin (explaining the data scrubbing processes employed by defendants and the consistent downward bias in the resulting UCRs) and Dr. Stephen Foreman (setting forth workable methodologies to compute class-wide damages). A complete listing of the materials on which I have relied appears in Exhibit A to this Expert Report.

## **II. Qualifications**

7. My qualifications to express expert opinions about the anticompetitive activity and common impact presented here are grounded in a more than thirty-five-year career of

---

<sup>9</sup> Lacewell, Linda A., James E. Dering, Kathryn E. Diaz, Brant Campbell and Sandra Rodriguez, "Health Care Report, The Consumer Reimbursement System is Code Blue," January 13, 2009, State of New York Office of the Attorney General, p. 6, [http://www.ag.ny.gov/bureaus/health\\_care/HIT2/report.html](http://www.ag.ny.gov/bureaus/health_care/HIT2/report.html). (Hereinafter, "NY OAG Report").

<sup>10</sup> In addition, UnitedHealth Group, Inc. and CIGNA agreed to pay \$50 million and \$10 million respectively. "Attorney General Cuomo Announces Final Agreement in Historic Reform of Health Insurance Industry – Every Insured New Yorker Now Protected from Corrupt Reimbursement System" New York State Attorney General Andrew M Cuomo, June 18, 2009, [http://www.ag.ny.gov/media\\_center/2009/june/june18a\\_09.html](http://www.ag.ny.gov/media_center/2009/june/june18a_09.html).

academic, government and consulting service in the field of economics. I am the Robert Gordon Sproul Distinguished Professor at the University of California at Berkeley. I received a Ph.D. with Highest Honors from the University of California at Davis in 1971, and in 1973 I was awarded a Postdoctoral Fellowship in Economics and Statistics at the University of Chicago. I am an Elected Fellow of the American Association for the Advancement of Science (1994), the American Statistical Association (1991), and the American Agricultural and Applied Economics Association (1990). In 1987, I was a Fulbright Scholar in Australia.

8. In my academic career, I have held positions teaching economics and statistics at many universities, including the University of Chicago, Harvard University, University of Illinois, Iowa State University, Hebrew University and the University of California at Davis. I served as Dean of the College of Natural Resources at the University of California at Berkeley from 1994–2000. I have published extensively in academic and professional journals on the application of statistical methods, market dynamics, industrial organization, environmental and resource economics, public policy, and futures and options. During my academic career, I have published more than 250 articles, books and book chapters. In addition, I have written more than 100 commissioned papers, governmental reports, and working papers. I have won 16 national awards and honors for my teaching and research.

9. I am the editor of the Annual Review of Resource Economics. I am a past associate editor of the Journal of the American Statistical Association and the Journal of Economic Dynamics and Control and a past editor of the American Journal of Agricultural Economics. From 1986 to 1987, I was Senior Economist at the President's Council of Economic Advisors with responsibility for finance, trade, and agriculture. While on leave from the University of California at Berkeley, I served as the Chief Economist at the Agency for

International Development in Washington, D.C. from 1988 to 1990. A true and correct copy of my curriculum vitae is attached hereto as Exhibit B.

10. In addition to my academic experience, I have served as an economic consultant to government agencies and private clients for more than thirty years. My work has focused on the application of economics and finance to complex legal and public policy disputes, and has frequently involved the determination of damages, common impact, and antitrust liability. I have extensive consulting experience in market analysis, allegations of unfair competition and antitrust violations, patent infringement, economic damage determination, economic feasibility studies, and statistical and econometric modeling. I routinely testify on matters pertinent to class certification, including common impact, individual (as opposed to shared) questions of fact, availability and sufficiency of evidence common to the class, and the existence of workable methodologies to prove damages on a class-wide basis. A true and correct listing of my testimony over the last four years is attached hereto as Exhibit C.

11. I am being compensated for my services in this case at my standard rate of \$850 per hour. No part of my compensation is dependent upon the outcome of this case. I have been assisted in my work by the staff of OnPoint Analytics, Inc., a statistical and economic consulting firm which also provides database services. The rates charged by OnPoint range from \$90 to \$450 per hour, depending upon the experience and specialization of the individual performing the work.

### **III. Summary of Opinions**

12. Based upon my independent analysis of the currently available information, I have reached the following general conclusions, each of which is fully explained in the subsequent sections of this expert report.



13. ***Opinion #1—Benefits and Costs of Coordination.*** Defendants Aetna and UnitedHealth Group stood to benefit enormously by reducing the amounts they or their subsidiaries and affiliates would reimburse for out-of-network services. Over the class period, Aetna is likely to have processed millions of such claims, as are the insurer subsidiaries of UnitedHealth Group.<sup>11</sup> The cost of implementing their coordinated action through Ingenix was minimal. Indeed, for UnitedHealth Group, which owns Ingenix, its profits from the sale to insurers of PHCS, MDR and other data products likely far exceeded any costs it incurred. The cost of receiving the manipulated UCRs for three PHCS data modules – not including any “data credits” for contributing data to Ingenix – was minimal. In one customer’s case these costs were, on average, estimated to be as low as \$0.04 per insured life per year,<sup>12</sup> a cost that could be passed on directly to the subscriber. For Aetna and other major insurers, the costs of participation were reduced through discounts of up to 50% on the Ingenix products in exchange for the contribution of their own data.<sup>13</sup> This contribution provided an additional opportunity for Aetna and other insurers to remove high value claims records before delivering their data to Ingenix, thus further driving down the resulting UCRs that would then be shared across the industry. Defendants therefore clearly benefitted from what has been described as an “industry...scheme that is truly...staggering in scope and impact”<sup>14</sup> although their costs of doing so were minimal.

14. ***Opinion #2—Coordinating Mechanisms.*** Ingenix’s Prevailing Healthcare Charges System (PHCS) and its Medical Data Resources (MDR) products were ideally suited to

---

<sup>11</sup> Senate Staff Report, p. 13.

<sup>12</sup> Senate Staff Report, p. 5 and Exhibit B: “Prevailing Healthcare Charges System (PHCS) Product Schedule,” p. 5.

<sup>13</sup> “The [10-year] Cooperation Agreement [which accompanied the sale of PHCS to HIAA] provided that Ingenix would charge HIAA members 50% less than non-HIAA members for use of the database and that Ingenix would waive all fees for HIAA members that contributed data.” Second Amended Complaint, ¶183.

<sup>14</sup> Testimony of Ms. Linda A. Lacewell, Counsel for Economic and Social Justice and Head of the HealthCare Industry Taskforce, (hereinafter, “Lacewell Testimony”); Office of the New York State Attorney General, “Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part I,” Hearing before the Committee on Commerce, Science, and Transportation US Senate, March 26, 2009, p. 4. (Hereinafter, “Senate Commerce Committee Hearing”).

accomplish the suppression of UCRs—and thus to artificially lower reimbursements for out of network-services—across the health insurance industry. As described in the Expert Report of Bernard Siskin, Ph.D., the methods used to purge—or “scrub”—the data both before and after submission to Ingenix disproportionately removed high dollar charges, thus skewing the remaining data.<sup>15</sup> The statistical processes then used to calculate values reported in Ingenix data products resulted in further downward bias as reported by Dr. Siskin. These Ingenix products were designed and marketed specifically to be used by insurers in setting reimbursements rates for out-of-network services and were published in schedules that identified (by “Geo-ZIP” location) precise dollar values for each of the recognized treatment codes.<sup>16</sup> These treatment codes are universally applied in claims submission and management throughout the United States and are common to all members of the class. In addition to reporting the purported median value for each procedure, Ingenix UCR benchmarking products supply values which purport to represent various percentile rankings for that procedure within the Geo-Zip.<sup>17</sup> Insurers therefore needed only to select which of these percentiles they wished to use in setting their own reimbursements. Because the scale itself is pushed downward as a result of the techniques described in Dr. Siskin’s report, payments are suppressed across the class, regardless of the particular percentile which an individual insurer chooses to use.

---

<sup>15</sup> Plaintiff’s expert Bernard Siskin has evaluated the UCR database and notes that Defendant’s “scrubbing” methodology “skews downward the amounts reported by the Ingenix databases for percentiles at and above the 70<sup>th</sup> percentile.” Siskin Report, p. 6.

<sup>16</sup> Ingenix, “Ingenix PHCS® Benchmarking Databases,” website accessed April 5, 2010, [http://www.ingenix.com/content/attachments/PHCSbenchmarking\\_PS.pdf](http://www.ingenix.com/content/attachments/PHCSbenchmarking_PS.pdf).

<sup>17</sup> According to Dave Ostler, Executive VP at Eden Prairie, Minnesota-based Ingenix, “The UCR pricing data is presented in table form, divided in 50<sup>th</sup>, 80<sup>th</sup>, and 90<sup>th</sup> percentiles. A median price is also provided.” Wojcik, J., “Ingenix database used by insurers, TPAs to calculate out-of-network reimbursements,” *Business Insurance*, February 17, 2008, <http://www.businessinsurance.com/article/20080217/ISSUES01/100024129>. “We delivered CPT codes in standardized format for the 25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> percentiles.” See also Ingenix, “Comparative Charge and Reimbursement Benchmarks,” website accessed 4/6/2010, <http://www.ingenix.com/content/attachments/comparative%20charge%20benchmarks.pdf>.

15. ***Opinion #3—Market Power.*** A number of circumstances combined to give defendants and their co-conspirators the market power necessary to artificially fix, suppress and maintain the rates reimbursed for out-of-network health care services. First, Ingenix controlled virtually the entire market for provider cost data and there were no alternative products available to insurers to use in setting reimbursements. Although data publication may be seen as a separate upstream market, it is inextricably linked to, and determinative of the reimbursement rates paid in the downstream market for insured coverage of out-of-network health care services. Second, participating insurers who used the Ingenix products accounted for the majority of health care premiums written in the U.S. Third, barriers to entry prevented any competition from arising. Fourth, the extreme information asymmetries created by defendants made it impossible for subscribers or their health care providers to anticipate what UCRs would be, to shop for plans offering higher UCRs, or to effectively challenge artificially low UCRs that had been applied to limit their claims for reimbursement. This opacity was guaranteed through written contracts between Ingenix and all participating insurers that specifically forbade any disclosure about Ingenix rate schedules, methods or products. Thus, until the disclosures resulting from private litigation, the New York State Attorney General's investigation and a Congressional Sub-Committee investigation, the Ingenix product remained a "black box" understood only by participating insurers. Fifth, even if subscribers were able to engage in some meaningful price comparison (which they were not), studies have confirmed that the demand for health care services (including insurance products) is relatively inelastic. In other words, the product is sufficiently important to consumers that they will continue to purchase it despite rising costs (or falling reimbursements). This provides an advantage to insurers seeking to suppress reimbursement rates because it reduces the amount of business that they would lose, even if

consumers became aware of the scheme. All of these factors combined to provide defendants and their co-conspirators with market power enabling them to suppress out-of-network reimbursement rates through the coordinating mechanism of Ingenix.

16. ***Opinion #4—Plus Factors.*** Courts and economists have recognized that certain characteristics make a market more susceptible to, and likely to have been affected by, collusion directed at pricing. These characteristics, commonly referred to as “plus factors,” include commoditization of the product being transacted, high levels of communication among the erstwhile competitors, ability to monitor each other’s prices, and the ability to manage or exclude those who might want to challenge the conspiracy and to punish cheaters. Each of these characteristics is evidenced in the present case. Health insurance is recognized to be a highly commoditized product, with plans sharing well understood and commonly applied structures (e.g., PPO and POS plans such as those at issue here), and with the salient differences between them consisting largely of gradations within those standard terms (e.g., co-pay levels, size of network, out of pocket caps). As a result, price comparison (on terms other than UCRs) is easily accomplished and is routinely undertaken by consumers and by their employers and other plan sponsors. Although virtually no information is available to subscribers regarding UCRs, each of the participating insurers shares precisely the same schedules published by Ingenix, based upon precisely the same data. In addition, there are numerous opportunities to communicate that stretch far beyond these schedules. The PHCS product was originally developed not by Ingenix or UnitedHealth Group, but by the health insurance industry trade association that was then known as the Health Insurance Association of America (HIAA), (now known as America’s Health Insurance Plans, AHIP). When the data product was sold to Ingenix, this association reserved for itself an ongoing advisory role in the construction and operation of the database and

its reported UCRs. Insurers also gain knowledge of each other's reimbursement rates through a practice known as coordination of benefits (COB). Where a subscriber is covered by two or more policies, the COB process is used to determine which insurer must pay first, and sets rules for the secondary payer's contribution. In the process of COB, each insurer is informed of the payment by the other and thus is able to determine the actual reimbursement rates. Were any participant to begin paying outside the ranges of UCRs established by Ingenix, COB data should make this detectable. Any insurer willing to forgo the cost savings resulting from artificially low Ingenix UCRs would gain no advantage unless it promoted to consumers its willingness to reimburse at higher rates. This public promotion would immediately become known to members of the conspiracy and thus cheating would be neither viable nor profitable.

17. ***Opinion #5—Actions against Unilateral Self Interest.*** Defendants own behavior is inconsistent with their unilateral self interest and therefore provides further evidence of the existence of a conspiracy. As mentioned in connection with Opinion #4, health insurance has become a highly commoditized product. Quotation forms, online services and various other tools make it possible to compare virtually all of the important terms in competing health insurance plans before purchasing; insurers compete directly for business based upon these terms. UCRs are the glaring exception. Nowhere can a plan sponsor or subscriber obtain information about the actual UCRs employed in calculating reimbursement rates for out-of-network services. Were insurers to act in their unilateral self-interest, disclosure and competition on these terms would be expected as well and would serve as a differentiating factor that might provide the insurer with a marketing advantage. However, the joint gains from coordinated suppression of UCRs—which could only be maintained through withholding information from the market – are great enough to outweigh the advantages otherwise to be obtained by competing

based on reimbursements for out-of-network services. Further, given the hundreds of millions of dollars in profits Ingenix generated, it would have been rational for one or more large insurers such as defendants to have launched a competing product, but they never did so.

18. ***Opinion #6—Impact on the Class Proved With Common Evidence.*** The final determination of both common impact and damages is a data-driven exercise. As with any other insurer, Aetna’s data includes detailed information about each individual claims submission, including the location and identity of the provider, whether the claim was in-network or out-of-network, the date of service, the exact nature of the service performed (taken from thousands of standardized procedure codes developed by the American Medical Association) and the amount billed. The data also reflects the outcome of Aetna’s claims adjudication process, including the “allowable” amount, whether that amount was determined based upon a UCR, the application of any co-pays or deductibles and the dollar amount actually paid. The data scrubbing practices that Ingenix employed improperly eliminated charges in the upper range of those reported and thus led to a systematic downward bias in the resulting UCRs, thereby impacting the class members. Aetna’s own process of purging higher dollar charges before transmitting its data to Ingenix further contributed to this suppression. In addition, other insurers such as CIGNA apparently contributed only partial data. Using a properly constructed set of UCRs as described in the report of Dr. Stephen Foreman, the detailed claims processing data can then be employed to calculate for all claims the dollar amount of the under-payment. Alternatively, amounts paid in claims reimbursement can be compared to amounts billed by providers to arrive at a precise outer boundary for damages.

#### IV. Background: Description of Market

19. It is well understood that the United States suffers from a crisis in the provision of health care. The American Journal of Medicine reports that every 90 seconds yet another person in the U.S. files bankruptcy because they are unable to pay their medical bills.<sup>18</sup> Most of these individuals have health insurance, but the coverage leaves them with large unsatisfied obligations. Over the six years 2001 through 2007, the frequency of bankruptcies triggered by medical debt has increased 50%.<sup>19</sup> Consistent with this trend, the dollar amount that families have been required to spend to meet their premium, deductible and co-payment obligations has been rising rapidly, even for those who have health insurance through their employers. A 2007 survey conducted by the Kaiser Family Foundation/HRET found that the share of monthly premium borne by families of covered employees rose from \$129 in 1999 to \$273 in 2007, more than doubling over just eight years.<sup>20</sup> One standard metric holds that a family is under “financial burden” from its health care expenditures when these expenditures exceed 10% of family income. Applying this test, the percentage of Americans suffering from financial burden as a result of health care expenditures rose from 16.4 percent in 2004 to 19.1 percent in 2006.<sup>21</sup> For those whose employers provide private insurance, the percentage rose from 15.1 percent in 2004 to 18.4 percent in 2006.<sup>22</sup> Another study conducted by the Commonwealth Fund found that more than 40 percent of working-age adults in the U.S. had difficulty paying their medical bills or accumulated medical debt in 2007. This was an increase from 33 percent in 2005. The same

---

<sup>18</sup> Himmelstein, David U., Deborah Thorne, Elizabeth Warren, Steffie Woolhandler, “Medical Bankruptcy in the United States, 2007: Results of a National Study,” *The American Journal of Medicine*, 122:8, (August 2009).

<sup>19</sup> Wojcik, J. “Medical bankruptcies surge as coverage erodes,” *Business Insurance*, June 22, 2009.

<sup>20</sup> NY OAG Report, p.12.

<sup>21</sup> Cunningham, Peter J., “The Growing Financial Burden of Health Care: National and State Trends, 2001-2006,” *Health Affairs*, 29:5, (May 2010), p. 2.

<sup>22</sup> Cunningham, Peter J., “The Growing Financial Burden of Health Care: National and State Trends, 2001-2006,” *Health Affairs*, 29:5, (May 2010), p. 3.

study reports that “an increasing number of adults who are insured have such high out-of-pocket costs relative to their income that they are effectively ‘underinsured.’”<sup>23</sup>

20. Despite these extraordinary expenses, approximately 70 percent of insured Americans (estimated at 110 million covered individuals) pay higher premiums for plans that allow them to select their own health care providers, even when those providers have not contracted with the health insurer.<sup>24</sup> As explained by Head of the Healthcare Industry Taskforce of the New York State Attorney General:

“[T]he reasons vary. Some people want the freedom to make decisions about their families’ health care while others cannot find the best physician to treat a particular condition in their insurer’s network. Those who carry out-of-network coverage sometimes need it when they least expect it. Patients are admitted to in-network hospitals and through no choice of their own are treated by out-of-network doctors there, resulting in anticipated, high medical costs for the consumers involved.”<sup>25</sup>

As explained in recent Congressional testimony on this topic,

“[T]hese consumers, it’s important to note, do pay more; they pay a higher premium. It costs them more money for this right to go out-of-network. And that balance of—that bargain is an important one to ensure is met. And they choose to pay more for the right to go out-of-network because it is fair to say that health care can be a matter of life and death, and choosing a doctor is a critical issue in that regard.”<sup>26</sup>

The healthcare debt burden increases in areas with the heaviest use of PPO and POS plans covering services by non-network providers. “Privately insured people in high-burden states tend to have lower enrollment in HMOs, which generally charge lower premiums in exchange for greater restrictions on care...The proportion of privately insured people enrolled in HMOs is

---

<sup>23</sup> Testimony of Chuck Bell, Programs Director Consumers Union, Senate Commerce Committee Hearing, p. 23 (hereinafter “Bell Testimony”).

<sup>24</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 7.

<sup>25</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 7.

<sup>26</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 5.



about 32 percent in states with the highest burden levels (greater than 20 percent) compared to 46 percent in states with the lower burden levels (less than 17 percent).”<sup>27</sup>

21. The nationwide determination of prevailing rates for medical services dates back to 1965, and the creation of the Medicare and Medicaid programs. Congress specified that Medicare was to reimburse physicians on the basis of "customary, prevailing, and reasonable charges" while, under Medicaid, state governments were given discretion in determining payment rates for health care providers.<sup>28</sup> Today, roughly one-half of states pay physicians based on fee schedules while the other half use charge-based reimbursements, founded on historical experience.<sup>29</sup> The comparable benchmark in private insurance is the "usual, customary, and reasonable reimbursement (UCR)." Under this system, the insurer pays based upon the lesser of the provider's actual billed charge, or what the insurer represents to be a customary community charge for the same procedure in that same location.<sup>30</sup> Recent investigations and private litigation have pointed out that "...under-reimbursement of the insured is a major problem. Until now, it has been a hidden problem. ...Nationwide, medical costs are the leading cause of individual bankruptcy, even though the individual usually had insurance. Fraudulent under-reimbursement for insured Americans is one part of this negative equation for consumers.”<sup>31</sup>

---

<sup>27</sup> Cunningham, Peter J., "The Growing Financial Burden of Health Care: National and State Trends, 2001-2006," Health Affairs, 29:5, (May 2010), p. 6.

<sup>28</sup> Randall, Vernellia R., "Historical Background: Managed Care, Utilization, and Financial Risk Shifting: Compensating Patients for Health Care Cost Containment Injuries," University of Puget Sound Law Review, 17:1 (Fall 1993), <http://academic.udayton.edu/health/02organ/manage01c.htm>, p. 5.

<sup>29</sup> Ibid.

<sup>30</sup> National Association of Insurance Commissioners, "Testimony of America's Health Insurance Plans (AHIP) before the National Association of Insurance Commissioners' Market Regulation and Consumer Affairs (D) Committee and Health Insurance and Managed Care (B) Committee," Public Hearing on Usual, Customary and Reasonable (UCR) Practices, September 24, 2009, p. 4.

<sup>31</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 7.

22. Throughout the class period, the reimbursement rates for out-of-network medical and dental services throughout the U.S. have largely been determined by reference to rate schedules published by defendant Ingenix. Although this fact was rarely disclosed to consumers or health care providers, Ingenix was, and at all times has been, a wholly owned subsidiary of UnitedHealth Group<sup>32</sup> whose affiliates together write more health care premiums than any other insurance group in the U.S.<sup>33</sup> As a result, UnitedHealth stood to profit by artificially lowering the rates published in widely adopted rate schedules, thus reducing the amount of its own claims payments. Ingenix offered two products that were specifically promoted throughout the industry for use in setting UCRs,<sup>34</sup> although the two underlying databases were ultimately merged in 2001. In 1997, Ingenix acquired from its developer the first of these products, the Medical Data Research system (MDR).<sup>35</sup> The next year Ingenix acquired the Prevailing Healthcare Charges System (PHCS) from its developer, the Health Insurance Association of America (HIAA).<sup>36</sup> HIAA was a trade association comprised of health insurance companies and has subsequently become known as America's Health Insurance Plans (AHIP). Ingenix's acquisition of PHCS, following close on the heels of its MDR acquisition, meant that it was virtually the only vendor to offer a data product designed for use in calculating UCRs. This condition persisted throughout the class period. Testimony confirms that there were no other commercial products available and that Ingenix, with the support and cooperation of its insurer participants, enjoyed a monopoly in the market for data services representing UCRs.<sup>37</sup> By 2008, the PHCS data had amassed approximately "1.3 billion records submitted by 100 major contributors, including

---

<sup>32</sup> Senate Staff Report, p. i.

<sup>33</sup> A.M. Best Company, Best's Aggregates & Averages, Life/Health, United States & Canada, 2005 Edition. "Writers of A&H, Ranked by 2004 Net Premiums Written," p.236-41, (hereinafter, "A.M. Best Aggregates 2004").

<sup>34</sup> Ingenix, "Comparative Charge and Reimbursement Benchmarks," website accessed 4/6/2010, <http://www.ingenix.com/content/attachments/comparative%20charge%20benchmarks.pdf>.

<sup>35</sup> Senate Staff Report, p. 3.

<sup>36</sup> Ibid.

<sup>37</sup> Senate Staff Report, p. 4.

insurers and third-party claims administrators.”<sup>38</sup> By December 2009, Ingenix counted among its customers approximately 2,000 payers and intermediaries.<sup>39</sup>

23. Under a 10-year Cooperation Agreement entered into as part of the 1998 sale of PHCS, members of HIAA were to continue to advise on and guide the use of PHCS through their participation in a Liaison Committee. Defendant Aetna is, and has been, a member of that group.<sup>40</sup> Aetna and CIGNA also hold seats on the Board of AHIP,<sup>41</sup> the industry organization that succeeded HIAA. In addition to participating through the Liaison Committee, insurers such as Aetna and CIGNA were able to influence the rates published by Ingenix through contributing their data for use in the PHCS and MDR platforms. They shared the same incentive as UnitedHealth to lower the published UCRs and thus lower their own claims payments.

24. Both the New York Attorney General and the United States Senate Committee on Commerce have found that these dual roles created an irreconcilable conflict of interest, especially where the insurers’ role in Ingenix was undisclosed.<sup>42</sup> Indeed, in testimony before the Commerce Committee, UnitedHealth’s CEO acknowledged and expressed his regret for the conflict.<sup>43</sup> The problem was compounded by obfuscation and affirmative misrepresentations regarding who Ingenix was and how the UCRs it published were determined. The New York Attorney General’s office determined that “none of the insurers accurately described the role Ingenix played in determining

---

<sup>38</sup>Wojcik, Joanne, “Ingenix database used by insurers, TPAs to calculate out-of-network reimbursements,” Business Insurance, February 18, 2008, <http://www.businessinsurance.com/article/20080217/ISSUE01/100024129>.

<sup>39</sup> “As of December 31, 2009, Ingenix’s customers include approximately 6,000 hospitals, 245,000 physicians, 2,000 payers and intermediaries, 200 Fortune 500 companies, 655 life sciences companies, 350 government entities, and 135 United Kingdom Government Payers, as well as other UnitedHealth Group businesses.” UnitedHealth Group, Inc., Form 10-K, fiscal year ended December 31, 2009, p. 7.

<sup>40</sup> Second Amended Complaint, ¶181-182.

<sup>41</sup> America’s Health Insurance Plans, “Board of Directors,” <http://www.ahip.org/content/default.aspx?bc=31|42|54>, accessed 4/6/2010.

<sup>42</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 6; Senate Staff Report, p. 8.

<sup>43</sup> Senate Staff Report, p. 9.

those reimbursement rates.”<sup>44</sup> The Senate Commerce Committee concluded, based on its review of written disclosure materials, that

“the insurance industry failed to provide consumers accurate, understandable information about Ingenix or the way it used Ingenix data to calculate out-of-network allowances. The Committee has even found consumer disclosures that contain patently false information. A review of contracts between Ingenix and the insurance industry shows that Ingenix explicitly prohibited insurers from disclosing information about the Ingenix databases to consumers and doctors.”<sup>45</sup>

25. As a result of an investigation commenced by New York State Attorney General Cuomo in 2008, on January 13, 2009 UnitedHealth agreed to divest itself of PHCS and MDR, to turn their data over to a newly-created non-profit organization, and to fund that non-profit with \$50 million to develop a new, independent database that could be used in determining fair out-of-network reimbursement rates throughout the U.S.<sup>46</sup> Numerous other insurers followed suit, including Aetna and CIGNA, each of whom agreed to end their relationship with Ingenix and to contribute funding for the new non-profit – \$20 million in the case of Aetna and \$10 million in the case of CIGNA.<sup>47</sup>

---

<sup>44</sup> “Our review of these materials revealed a shocking lack of transparency and accuracy. Most insurers failed to disclose accurately and clearly what they would pay or how they would determine payment for out-of-network care. In one case, we found that a national insurer had filled an entire page with alternative ways of how it purported to calculate out-of-network rates in language that was unintelligible.” Lacewell Testimony, Senate Commerce Committee Hearing, p. 8. “Not only did the insurers not disclose Ingenix was doing this or that Ingenix was part of the health insurance industry, they frequently affirmatively misstated how they were determining this, by either referring to entities that used to do it, because they hadn’t updated their materials, or by saying, ‘We rely on, you know, independent data,’ and things that really misled consumers who were reading that language.” Ibid. at 40.

<sup>45</sup> Senate Staff Report, p. iii. “Confidentiality agreements between Ingenix and its customers prohibited the disclosure of information about the database products to patients or doctors.” Ibid. at p. ii.

<sup>46</sup> Bell Testimony, Senate Commerce Committee Hearing, pp. 24-25.

<sup>47</sup> “Attorney General Cuomo Announces Final Agreement in Historic Reform of Health Insurance Industry – Every Insured New Yorker Now Protected from Corrupt Reimbursement System,” New York State Attorney General Andrew M Cuomo. June 18, 2009, accessed April 2, 2010 at [http://www.ag.ny.gov/media\\_center/2009/june/june18a\\_09.html](http://www.ag.ny.gov/media_center/2009/june/june18a_09.html).

## V. Discussion

### A. *Opinion #1— The Benefits to Defendants of Coordination Far Outweighed Any Costs*

26. Enormous savings can be (and apparently have been) realized by defendants and other insurers as a result of the suppression inherent in Ingenix's UCR tables. The New York Attorney General found that "for ordinary doctor's visits, the Ingenix databases understate the market rate by up to 28 percent across the state. This translates to at least hundreds of millions of dollars in losses for consumers over the past ten years across the country."<sup>48</sup> Those losses to consumers are, of course, equal to the wrongful gains experienced by insurers using Ingenix.

27. PHCS was used throughout all regions of the U.S. and provided the basis for paying what the U.S. Senate Commerce Committee has estimated to be "millions of claims a year" for out-of-network medical services.<sup>49</sup> In 2004, UnitedHealth Group companies, with Aetna and CIGNA, wrote health premiums totaling almost \$26 billion and, standing alone, comprised roughly 30% of the U.S. health care market.<sup>50</sup> Ingenix data was also used to set UCRs for many other insurance products such as out-of-network dental care.<sup>51</sup>

28. Despite rising health care costs, health insurers have continued to experience strong profits.

"[H]ealth plans during these years were able to raise prices consistently above the rate of growth in costs, with premium yields 1.5 to 2.0 percentage points above cost trends since 2000. The ability of premiums to outpace claims is further illustrated in ...the ratio of medical costs to premium revenues for insured products. Between 2000 and 2003 the medical cost ratios declined by more than four percentage points for Anthem and United and by nine percentage points for Aetna, while holding constant for WellPoint (with the lowest baseline ratio) and CIGNA."<sup>52</sup>

---

<sup>48</sup> NY OAG Report, p. 6.

<sup>49</sup> Senate Staff Report, p. 13.

<sup>50</sup> A.M. Best Aggregates 2004, pp. 236-241.

<sup>51</sup> Senate Staff Report, p. 20.

<sup>52</sup> Robinson, James C., "Consolidation and the Transformation of Competition in Health Insurance," Health Affairs, 23:6, (2004), p. 19.

“[T]here has been year-to-year growth in the largest health insurers’ profitability (e.g., premiums, operating earnings margins, return on equity and stock price growth). By contrast, consumers have been facing higher premiums, deductibles, copayments and coinsurance. Recent research finds that increased consolidation in health insurance markets accounts for nearly 10 percent of the premium growth between 1998 and 2006.”<sup>53</sup>

Although the resulting strong profitability is certainly not attributable only to suppressed reimbursement rates, those reimbursements have played their part in inflating insurer profits.

29. Weighed against these significant gains, the costs of participating in coordinated rate suppression were negligible at best. Defendants and other participating insurers needed some data product on which to base their UCRs—policy terms required them to pay based on a rate typical for the community. As a result, the cost of subscribing to PHCS or MDR, or both, must be weighed against the cost of their replacement with another option. Only the largest insurers would have sufficient data from their own operations to be able to do this without recourse to other data sources. Even they would have to deploy significant internal resources to arrive at a functional result. For those who chose to purchase Ingenix’s products (and the large majority of health insurers did), discounts estimated at approximately 50 percent were available if they also contributed their claims data.<sup>54</sup> That data contribution offered a double benefit; by pre-editing its data and removing high dollar value claims, the insurer could influence the resulting UCRs published by Ingenix and thus save itself additional money in the ultimate claims payment process. The discounted cost of the product, for one insurer estimated to be as low as \$0.04 per insured life per year, was undeniably small in light of the likely cost of developing alternatives.<sup>55</sup> In the case of defendant UnitedHealth, any costs were counterbalanced by the

---

<sup>53</sup> American Medical Association Division of Economic and Health Policy Research, “Competition in Health Insurance: A Comprehensive Study of U.S. Markets, 2009 Update,” American Medical Association, 2009, p. 1.

<sup>54</sup> Senate Staff Report, p. 6.

<sup>55</sup> Senate Staff Report, p. 5 and Exhibit B: “Prevailing Healthcare Charges System (PHCS) Product Schedule,” p. 5.

profits to be gained through operation of Ingenix, its wholly-owned subsidiary. Although I have not been supplied with sufficient information to estimate the profits specifically attributable to the PHCS and MDR products, I note that Ingenix's profit margins during the class period were roughly twice those of the parent company.<sup>56</sup>

30. The other cost that would logically have been considered by participants in the alleged conspiracy is the financial and business risk of detection. However, in this case numerous screens were implemented to limit that risk. Users of the Ingenix products (including defendants) were required to sign agreements specifically committing not to disclose the published rates, not to explain the Ingenix methodology, and limiting responses to subscriber and provider inquiries to a single rate.<sup>57</sup> These contracts also reassured insurers that Ingenix would provide them with legal support if the rates were challenged, a provision that would have significantly altered the contingent costs analysis.<sup>58</sup> The cost benefit ratio thus would have motivated the parties to participate in a conspiracy of the type alleged.

**B. *Opinion #2— The Databases Maintained and Published by Ingenix Provided an Effective Means of Suppressing Reimbursement for Out-of-Network Services***

31. Ingenix's data products were an effective means of coordinating, and thereby suppressing, the reimbursement rates for out-of network medical and dental procedures across the United States. They provided a tool to communicate to all participating insurers the same rates for each procedure code in each geographic area. As discussed in Opinion 3, Ingenix was the only provider of UCR rate data throughout the class period and its products were widely used

---

<sup>56</sup> Ingenix's Operating Margins ranged from 13.5% to 20.4% from 2007 to 2009, while the overall consolidated operating margin across all UnitedHealth entities ranged from 6.5% to 10.4%. UnitedHealth Group, Inc., Form 10-K, fiscal year ended December 31, 2009, p. 37.

<sup>57</sup> Senate Staff Report, Exhibit B: "Prevailing Healthcare Charges System (PHCS) Product Schedule", p. 2-3.

<sup>58</sup> Ibid.

across the country. Although I do not have the data necessary to perform a more exact estimate, it is clear that more than half of the total health insurance market consists of Ingenix users.<sup>59</sup>

Indeed, UnitedHealth Group (which owns Ingenix), Aetna Group and CIGNA Group together accounted for approximately 30% of U.S healthcare premiums in 2004 and were three of the five largest writers of such coverage.<sup>60</sup>

32. Rather than being constructed from neutral sources, the data used by Ingenix comes from the very insurers who would benefit from lower UCRs. Data contributors (such as Aetna, CIGNA and UnitedHealth Group companies) were given significant discounts on the cost of PHCS and MDR. It was reported in 2008 that the “PHCS database contains 1.3 billion records submitted by 100 major contributors, including insurers and third-party claims administrators.”<sup>61</sup> Although the requirement to contribute complete data was written into the Ingenix license agreement, there is ample evidence that Ingenix was aware Aetna, CIGNA and others were providing only partial, or pre-scrubbed data as described in Dr. Siskin’s Expert Report.<sup>62</sup> Ingenix used the data nonetheless. Ingenix made no effort to determine whether the charge data it received constituted a representative sample.<sup>63</sup> Indeed, it appears that “Ingenix has

---

<sup>59</sup> “The group of insurance companies that have settled with the New York Attorney General’s office represent about 31% of total health insurance market share”; The Senate investigation also polled 18 other insurance companies that did not settle and “[c]ollectively, these 18 companies represent about 33% of the health insurance market in the United States.” All but one of these 18 companies used Ingenix. Senate Staff Report, pp. 12-13.

<sup>60</sup> A.M. Best Aggregates 2004, pp. 236-41.

<sup>61</sup> Woycik, J. “Ingenix database used by insurers, TPAs to calculate out-of-network reimbursements,” Business Insurance, February 18, 2008.

<sup>62</sup> Similarly, Dr. Siskin’s analysis of contributions to the Ingenix database by CIGNA, Guardian and Aetna suggest that any “audit” of that data by Ingenix was entirely inadequate. Siskin Report, pp. 10-19.

<sup>63</sup> “Senator SNOWE. OK. So, you’ve been trained as a doctor and as a medical researcher, so maybe you can answer this question. Statistical experts who looked at this Ingenix database have concluded it’s—that it is a convenient [*sic., convenience*] sample of medical charges, not a representative sample of medical charges. Can you explain that difference—Dr. NIELSEN. Yes. It’s a—Senator SNOWE.—between the two? Dr. NIELSEN. It’s a pretty simple difference. If it’s representative, the individual doing the sampling works very hard to make sure that it accurately represents the full range. A convenient sample is left to the person doing the sampling to decide how to do the sample. And it’s a very big difference. Senator SNOWE. The big difference, in terms—because they don’t analyze the data. Dr. NIELSEN. Sure. Senator SNOWE. Obviously, in this instance—in these instances, they did not analyze what was—you know, but—Dr. NIELSEN. What was inconvenient. Senator SNOWE.—what was inconvenient. So, obviously it was a very convenient sample for the insurance company, but a raw deal for



never tested its results to determine if its statistical conclusions bear any relationship to the actual high, low, median or 80th percentile or actual marketplace CPT [Current Procedural Terminology] code service rates charged by health care providers in any given area.”<sup>64</sup> With Ingenix, the defendants had crafted a “...closed-loop system of the health insurance industry collecting the information among itself, pooling the information together, all relying on the same rate information, a system that is impenetrable to the consumer.”<sup>65</sup>

33. Even though Ingenix’s contract states that its data is supplied for “informational purposes,”<sup>66</sup> Ingenix marketing materials stressed that “...PHCS users will achieve substantial cost savings, including a 16-to-1 return on investment.”<sup>67</sup> PHCS is sold in modules (e.g., medical and surgical, anesthesiology, dental) so that each insurer need only purchase the modules pertaining to its lines of business. Similarly, access to the product can be obtained for the entire United States, or for just the locations where the insurer conducts business.<sup>68</sup>

Locations were defined by geozips, which represent the entire geographic area sharing the first

---

consumers. They underestimated the real charges, and consumers obviously paid billions of dollars out of their own pockets that clearly the insurance companies should have been paying.” Dr. Nancy H. Nielsen, M.D., Ph.D., President, American Medical Association, “Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part I,” Hearing before the Committee on Commerce, Science, and Transportation US Senate, March 26, 2009, pp. 42-43. “The collector of the data in a convenience sample is responsible for testing and verifying the data to ensure that it is not biased and to ensure that its convenience sample is in fact representative of the population of charges. Ingenix failed to properly insure that its rules were followed, and knowingly let CIGNA and Aetna (and presumably others) contribute data (which Ingenix then used) that failed to meet Ingenix’s own rules and standards.” Siskin Report, p. 18.

<sup>64</sup> Senate Staff Report, pp. 5-6.

<sup>65</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 6; “Ingenix gathers billing data from the largest health insurers in the country, including UnitedHealth Group Incorporated (“UnitedHealth”), Aetna, CIGNA and Wellpoint, and then sends back schedules to those health insurers and others, based on the pooled data, which the insurers use as a benchmark to set their reimbursement rates.” NY OAG Report, p.2.

<sup>66</sup> “Client is responsible for decisions made and actions taken based on the database. The database is designed and intended for use by professionals experienced in the uses and limitations of claims processing, and it is client’s responsibility to ascertain the suitability of the database for client’s purposes. The database is provided for informational purposes only and Ingenix disclaims any endorsement, approval, or recommendation of data in the database.” Siskin Report, p. 9.

<sup>67</sup> “Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part II,” Hearing before the Committee on Commerce, Science, and Transportation US Senate, March 31, 2009, p. 18.

<sup>68</sup> Ingenix, “Ingenix PHCS® Benchmarking Databases,” website accessed April 5, 2010, [http://www.ingenix.com/content/attachments/PHCSbenchmarking\\_PS.pdf](http://www.ingenix.com/content/attachments/PHCSbenchmarking_PS.pdf).

three digits of their zip codes, regardless of whether those areas combine rural and urban or wealthy and poor neighborhoods.

34. The PHCS results provided to insurers appeared as a series of dollar prices for each CPT code and geozip combination ordered. Each insurer who had ordered the same module and geographic coverage would be presented with exactly the same rates.<sup>69</sup> The table below represents an extract from PHCS taken from the Ingenix website in connection with the United States Senate Commerce Committee investigation and helps to represent this array of prices.<sup>70</sup>

CPT Code	Description	50 <sup>th</sup>	60 <sup>th</sup>	70 <sup>th</sup>	75 <sup>th</sup>	80 <sup>th</sup>	85 <sup>th</sup>	90 <sup>th</sup>	95 <sup>th</sup>
<b>45378</b>	Diagnostic Colonoscopy	\$764	\$783	\$859	\$887	\$907	\$939	\$1,008	\$1,105
<b>71020</b>	Chest X-Ray	\$102	\$103	\$106	\$107	\$107	\$107	\$113	\$122

35. Because insurers have typically based their out-of-network reimbursements on a particular percentile in the distribution of charges reported by Ingenix (most commonly the 80th percentile)<sup>71</sup> a suppression of the overall rates reported by Ingenix inevitably has a downward impact on reimbursements the insurer makes to its subscribers. The Expert Report of Bernard Siskin Ph.D. explains in detail the processes that led to this downward bias, including the disproportionate removal of higher dollar charges by both the contributing insurers prior to their data delivery, and by Ingenix itself in the process of what it incorrectly described as “data validation.” As described by Dr. Siskin, the PHCS and MDR databases “share a flawed underlying methodology (including both data contribution and editing), which skews downward

<sup>69</sup> “All users of the [Ingenix] database, i.e., Aetna and its Co-Conspirators, are given precisely the same dollar amounts by percentile for each particular procedure and area.” Second Amended Complaint, ¶129.

<sup>70</sup> Senate Staff Report, p. 7; Ingenix, “PHCS®,” accessed April 5, 2010, <http://www.ingenix.com/Products/WorkersComp/DataBenchmarkingPricingWC/PHCS/>.

<sup>71</sup> Senate Staff Report, pp. 7-8.

the amounts reported by the Ingenix databases for the percentiles at and above the 70<sup>th</sup> percentile ('Upper Percentiles')."<sup>72</sup>

36. Furthermore, Ingenix allowed the defendants to under-reimburse their patients and providers for out-of-network services under the ruse of scientific rigor and integrity. While Ingenix CEO Andy Slavitt is ready to defend Ingenix's reputation<sup>73</sup> considerable evidence points to systematic manipulation of UCR data as well as a misrepresentation of the UCR data's integrity and impartiality. As Senator John D. Rockefeller observed, this "closed-loop" system allowed there to be "a reality-based prevailing market price for medical services, and then there is a fictional 'usual'—UCR rate used by the insurance companies."<sup>74</sup> The difference between the two meant more profits for insurance companies at the expense of the class members.

37. As pointed out by both Dr. Siskin and Nancy H. Nielsen M.D., President of the American Medical Association, the Ingenix database lacks information that is relevant to a physician's retail charges, such as the physician's training and qualifications and the type of facility where the service was provided.<sup>75</sup> Similarly, any analysis of prevailing medical costs must take into account specific location differences. For example, in a study of costs per

---

<sup>72</sup> Siskin Report, p. 6.

<sup>73</sup> Andy Slavitt, Chief Executive Officer, Ingenix. "Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part II." Hearing before the Committee on Commerce, Science, and Transportation US Senate. March 31, 2009. pp. 7-8.

<sup>74</sup> John D Rockefeller IV, Chairman. "Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part I." Hearing before the Committee on Commerce, Science, and Transportation US Senate. March 26, 2009. p. 50.

<sup>75</sup> Dr Nancy H. Nielsen, M.D., Ph.D., President, American Medical Association. "Statement of the AMA to the Committee on Commerce, Science, and Transportation, RE: Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for?" March 26, 2009. pp. 3-4; "In order to determine the set of reasonably similar services, the database would need to contain information on those factors which one would expect to affect the cost of the services, such as: (i) significant differences in provider qualifications, (ii) significant differences in type of medical service provided, and (iii) significant differences in medical market area. Given this information, one could then determine which charges are reasonable and which are 'too high.' A review of the Ingenix databases shows that they do not (and cannot) satisfy the core concepts of reasonably similar provider qualifications, medical services rendered and medical market area in which the service is performed. In sum, the Ingenix Databases do not allow one to compute a distribution of charges which are sufficiently similar that one can reasonably assess which charges are 'too high.' Siskin Report, pp. 5, 6, 9-12, 22.

admission for patients in four different diagnostic related groups (DRGs), the “urban rural cost differential in the four-state sample was 57-67% for cardiac and cerebrovascular patients, 36% for pneumonia, and ‘only’ 20% for prostate admissions...Cardiac and cerebrovascular [urban-rural] differences are reduced 27-29%; pneumonia differences, 39%; and for prostate cases, fully 64% of the gap is explained by wage differences across urban and rural areas.”<sup>76</sup> The authors also find significant differences in the cost of medical procedures at finer geographic distinctions: “In the cardiac cluster, for example, the 68% [urban-rural] gap...is composed of a 91% large-city core differential, a 38% suburban ring difference and a 27% other-MSA difference” as compared to costs in rural areas.<sup>77</sup> As a result, Ingenix’s decision to largely ignore such differences has rendered its products unreliable.

**C. *Opinion #3— Defendants Had Market Power and Were Able to Suppress Reimbursements Due to Their Monopoly in the Data Market, Their Large Shares in the Health Insurance Market, High Barriers to Entry, Extreme Information Asymmetries and Inelasticity of Demand for Health Insurance Coverage***

38. The presence and operation of various economic forces and characteristics of the health insurance industry created a business environment conducive to collusion and provided defendants and their co-conspirators with market power enabling them to suppress and maintain the rates reimbursed for out-of-network health care services. Ingenix controlled virtually the entire market for provider cost data, leaving insurers with no alternative products to use in setting reimbursements. Ingenix attained nearly all of the market for benchmarking data products when

---

<sup>76</sup> Cromwell, Jerry, Janet B. Mitchell, Kathleen A. Calore and Lisa Iezzoni, “Sources of Hospital Cost Variation by Urban-Rural Location,” *Medical Care*, Vol. 25, No. 9, (September 1987), p. 820.

<sup>77</sup> Cromwell, Jerry, Janet B. Mitchell, Kathleen A. Calore and Lisa Iezzoni, “Sources of Hospital Cost Variation by Urban-Rural Location,” *Medical Care*, Vol. 25, No. 9, (September 1987), pp. 823-824.

it acquired both the MDR and PHCS platforms in the late 1990s.<sup>78</sup> “In internal documents, United Healthcare, as owner of the MDR database, acknowledged it was acquiring its ‘only competitor’ by acquiring PHCS in October 1998.”<sup>79</sup> The acquisition left “nothing else in the marketplace”<sup>80</sup> and as a result, Ingenix’s usual and customary database products have been used by every major player in the health insurance industry to calculate reimbursement payments.<sup>81</sup>

39. The participating insurers who used the Ingenix products accounted for the majority of health care premiums written in the United States. Due to their wide geographic scope, large insurers have significant power, even though their share in a single locality may be small.<sup>82</sup> According to a 2007 AMA study, UnitedHealth Group was the first or second largest insurer in terms of PPO enrollments in 21 of 43 states studied, with an average market share in these markets of over 21%.<sup>83</sup> The same study found that WellPoint, Inc. (which operates in New York through its “Empire” affiliates and is an Ingenix subscriber) is the first or second largest insurer in terms of PPO enrollments in 11 of 43 states studied with an average market share in these markets of over 46%.<sup>84</sup> Aetna was the first or second largest insurer in terms of PPO

---

<sup>78</sup> Expert Report of Stephen Foreman, Ph.D., J.D., MPA, dated April 6, 2010, submitted herein, ¶31.

<sup>79</sup> American Medical Association, et al. v. United Healthcare Corporation, et al., S.D.N.Y. (No. 00 Civ. 2800), p. 12.

<sup>80</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 32.

<sup>81</sup> John D. Rockefeller, Senator WV. “Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part II.” Hearing before the Committee on Commerce, Science, and Transportation US Senate, March 31, 2009, p. 2.

<sup>82</sup> Robinson, James C., “Consolidation and the Transformation of Competition in Health Insurance,” Health Affairs, 23:6, (2004), p.17.

<sup>83</sup> American Medical Association Division of Economic and Health Policy Research, “Competition in Health Insurance: A Comprehensive Study of U.S. Markets, 2009 Update,” American Medical Association, 2009, Table 3. “Market Concentration (HHI) and largest insurers’ market shares, PPO product markets,” pp. 24-32.

<sup>84</sup> American Medical Association Division of Economic and Health Policy Research, “Competition in Health Insurance: A Comprehensive Study of U.S. Markets, 2009 Update,” American Medical Association, 2009, Table 3. “Market Concentration (HHI) and largest insurers’ market shares, PPO product markets,” pp. 24-32.

enrollments in 7 of 43 states studied with an average market share in these markets of over 19%.<sup>85</sup> CIGNA has affiliated health insurance corporations operating in at least 23 U.S. states.<sup>86</sup>

40. Significant barriers to entry in the health insurance industry further strengthen the market power of the participating insurers. According to the American Medical Association, some firms enjoy near-monopolies in some regions.<sup>87</sup> Barriers to entry are especially pronounced in the field of health insurance because it relies upon heavily negotiated pricing and service relationships between insurers and health care providers.<sup>88</sup> Developing a network of health care providers is extremely costly and challenging, and insurers must also develop “sufficient business to permit the spreading of risk.”<sup>89</sup> “Entrants face a Catch 22 – they need a large provider network to attract customers, but they also need a large number of customers to obtain sufficient price discounts from providers to be competitive with the incumbents.”<sup>90</sup> According to the Antitrust Division of the Department of Justice, “effective entry – entry and growth to minimum viable scale – for an HMO or HMO-POS plan in either Houston or Dallas typically takes two to three years and costs up to \$50 million.”<sup>91</sup>

---

<sup>85</sup> American Medical Association Division of Economic and Health Policy Research, “Competition in Health Insurance: A Comprehensive Study of U.S. Markets, 2009 Update,” American Medical Association, 2009, Table 3. “Market Concentration (HHI) and largest insurers’ market shares, PPO product markets,” pp. 24-32.

<sup>86</sup> A.M. Best, “A.M. Best Affirms Ratings of CIGNA Corporation and Its Subsidiaries; Revises Outlook to Negative News Release, November 14, 2008.

<sup>87</sup> Helmar, Michael. “U.S. Industry Outlook: Hard Truths on Health Reform.” *Economic Analysis, Data, and Forecasting and Credit Risk Management:: Moody's Economy.com*. Moody's Economy.com, Oct. 20, 2009. Web. Mar. 29, 2010. <[http://www.economy.com/dismal/article\\_free.asp?cid=118840](http://www.economy.com/dismal/article_free.asp?cid=118840)>.

<sup>88</sup> B.T. Beam and J.J. McFadden, 1998, *Employee Benefits*, 5<sup>th</sup> ed: Dearborn Financial Publishing, Inc., Chapter 9, 190.

<sup>89</sup> American Medical Association Division of Economic and Health Policy Research, “Competition in Health Insurance: A Comprehensive Study of U.S. Markets, 2009 Update,” American Medical Association, 2009, p.2.

<sup>90</sup> United States of America. Department of Justice & Federal Trade Commission. *Improving Health Care: A Dose of Competition*, July 2004, Chapter 6, Page 10.

<sup>91</sup> United States of America. Department of Justice & Federal Trade Commission. *Improving Health Care: A Dose of Competition*, July 2004, Chapter 6, Page 9.

41. As a result, there have been few new entrants into health insurance markets despite the large profits many health insurers have posted in recent years.<sup>92</sup> Moreover, “there have been no major innovations in technology, product design, or organizational structure that new firms could use to offset the scale advantages enjoyed by incumbents.”<sup>93</sup> Even large and successful health insurers such as WellPoint and UnitedHealth Group are cautious as to the ease of extending into new markets.<sup>94</sup> A national plan today will make a serious entry into a new regional market only through the acquisition of existing firms, as opposed to developing or expanding their own networks and products, further suggesting that there are substantial barriers to entry.<sup>95</sup> “The challenges associated with building and maintaining these relationships have led to a dwindling number of health care insurers despite growing premium volume and profits, a trend which many experts expect to continue.”<sup>96</sup>

42. Information barriers can also help to create or sustain market power. The defendants created information asymmetries through written contracts which made it impossible for consumers and doctors to understand the determination of UCRs. Ideally, subscribers could find out what their insurer considers usual and customary before they go out of network for health care services. However, contracts between Ingenix and the insurers (the ‘Customer’) included confidentiality agreements that explicitly prohibited insurers from disclosing information about the Ingenix databases to consumers and physicians.<sup>97</sup> As a condition of obtaining the software and data necessary to calculate UCR rates for various services, the

---

<sup>92</sup> American Medical Association Division of Economic and Health Policy Research, “Competition in Health Insurance: A Comprehensive Study of U.S. Markets, 2009 Update,” American Medical Association, 2009, p. 2.

<sup>93</sup> Robinson, James C., “Consolidation and the Transformation of Competition in Health Insurance,” *Health Affairs*, 23:6, 2004, p. 20.

<sup>94</sup> *Ibid.*

<sup>95</sup> *Ibid.*

<sup>96</sup> Parekh, R., “Health Plan M&A Reshapes Market; Deals create Huge Networks,” *Business Insurance*, December 2005; Wojcik, Joanne, “Health Care merger Activity Continues,” *Business Insurance*, December 12, 1998.

<sup>97</sup> Senate Staff Report, page iii.

Ingenix data Customer was required to enter into confidentiality and non-disclosure agreements in which they agreed not to share the data with third parties, including physicians and patients.<sup>98</sup>

As alleged in the Second Amended Complaint: “These confidentiality and non-disclosure agreements restrain potential competition in the relevant market, and help conceal the agreement to fix prices as well as the role each Defendant and Co-Conspirator has in that agreement.”<sup>99</sup> As a result, “physicians and patients have no understanding how insurers come up with usual and customary fees,” and “insurance companies have so much power, they can tell physicians to take [their fee] or leave it.”<sup>100</sup>

43. The Ingenix product remained a “black box” understood only by participating insurers until disclosures resulting from private litigation, the New York State Attorney General’s investigation and a Congressional Sub-Committee investigation. During 2007 and early 2008, the New York Attorney General received complaints that “health insurers in New York and nationwide were underpaying consumers and their physicians for out-of-network care. Consumers also expressed confusion about how insurers were determining the rate of reimbursement for out-of-network care.”<sup>101</sup> The New York Attorney General’s investigation led some to conclude “that Ingenix is nothing more than a conduit for rigged information that is defrauding consumers of their right to fair reimbursements for their out-of-network health care costs.”<sup>102</sup> This investigation also recognized the problematic nature of the Ingenix system: “first of all, that it is the insurance industry determining [the UCRs], and second, [the consumers] do not know how to challenge the rates, and they are almost never given, by the industry, an

---

<sup>98</sup> Senate Staff Report, pages 4-5 and Exhibit A.

<sup>99</sup> Second Amended Complaint, ¶191.

<sup>100</sup> Max, Sarah, “The Fuzzy Math of Health Insurance,” August 30, 2005, CNNMoney.com.

<sup>101</sup> NY OAG Report, p. 9.

<sup>102</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 8.



opportunity to do so.”<sup>103</sup> “To make matters worse, health insurers routinely hide this conflict of interest from their members in obscure policy language making it a problem that is nearly impossible to detect.”<sup>104</sup> In a review of health insurance plan documents, the New York Attorney General’s Office found that “No insurer in its documents disclosed that a major health insurer (UnitedHealth Group) operates the databases used to calculate out-of-network reimbursement rates. Many plans falsely represented that out-of-network rates were based on data supplied by the ‘HIAA’ (the Health Insurance Association of America), a trade association that has not existed since 2003.”<sup>105</sup>

44. Market power may also be created or enhanced where the demand for a product changes little in response to a change in its price. Academic studies have confirmed that the demand for health care services, including insurance products, is relatively inelastic. This enables insurers to suppress reimbursement rates without losing customers. Reimbursement for out-of-network services using UCRs directly affects the cost to the insured for using medical services from anyone other than the plan’s preferred providers. As such, the most directly relevant studies in the health economics literature are those that estimate insured policy holder’s price responsiveness to changes in co-payments, or the “coinsurance elasticity of demand” for health services; Manning et al (1987) estimate that the coinsurance elasticity of demand is - 0.2.<sup>106</sup>

45. Many recent studies in the health economics literature estimate the price elasticity of demand for health insurance from “take-up rates” of health insurance plans where employees

---

<sup>103</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 6.

<sup>104</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 8.

<sup>105</sup> NY OAG Report, p. 18.

<sup>106</sup> Manning, Willard G., Joseph P. Newhouse, Naihua Duan, Emmett B. Keeler, Arleen Leibowitz, and M. Susan Marquis, “Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment,” *The American Economic Review*, Vol. 77, No. 3 (June, 1987), pp. 251-277.

face different health insurance *premiums* when choosing among different health plans at an employer. While these studies examine select populations of employees at various employers, they consistently find that the price elasticity of demand for health care as out-of-pocket premiums change is inelastic (i.e., between -1 and 0). Estimates for older workers tend to be the most inelastic (-0.2 or less),<sup>107</sup> while younger and healthier groups are estimated to have less inelastic, but still inelastic demand for health services, between -1 and 0.<sup>108</sup> Even studies from other countries with different health care systems, such as the Netherlands, confirm that the demand for health care is inelastic (around -.14) and also find greater inelasticity for visits to specialists.<sup>109</sup> Studies that analyze variation in copayments for pharmaceutical benefits of health plans also find inelastic demand, estimated at around -0.3.<sup>110</sup>

46. The structure of the market for medical treatment, the patient's situation, and the patient's ties to the physician "make patients hardly more than buyers without choice."<sup>111</sup> Due to the inelastic demand of health care, "purchasers [of health care] have proved ineffective in restraining premiums and profits in markets where consolidation has reduced the number of competing health plans."<sup>112</sup>

---

<sup>107</sup> Buchmueller, Thomas C. and Sabina Ohri, "Health Insurance Take-up by the Near-Elderly," *Health Services Research*, 41:6, (December 2006), pp. 2054-2073.

<sup>108</sup> Royalty, Anne Beeson and Neil Solomon, "Health Plan Choice: Price Elasticities in a Managed Competition Setting," *Journal of Human Resources*, 34:1, (Winter, 1999), pp. 1-41.

<sup>109</sup> Van Vliet, Rene C. J. A., "Deductibles and Health Care Expenditures: Empirical Estimates of Price Sensitivity Based on Administrative Data," *International Journal of Health Care Finance and Economics*, 4:4 (Dec., 2004), pp. 283-305.

<sup>110</sup> C. Montagne, "Bargaining Health Benefits in the Workplace: An Inside View," *The Milbank Quarterly*, 80:3, (2002), pp. 547-567

<sup>111</sup> Hall, M.A., and Schneider, C.E., "Patients as Consumers: Courts, Contracts, and the New Medical Marketplace," *Michigan Law Review*, 106 (February 2008):643-689, at 653.

<sup>112</sup> Robinson, James C., "Consolidation and the Transformation of Competition in Health Insurance," *Health Affairs*, 23:6, 2004, p. 20-21.

**D. *Opinion #4—Plus Factors Confirming the Existence and Viability of the Conspiracy Include Commoditization of the Underlying Products, Efficient and Complete Price Communication Among Defendants, And the Absence of any Threat of Disclosure or Competition by Non-Complying Insurers***

47. In this case, the defendants and other participating insurers were not merely engaging in parallel pricing, but specifically intended that each of them would set their reimbursement rates based upon the common Ingenix schedules. PHCS and MDR were specifically designed, marketed and used for this purpose. As a result, this is effectively an express horizontal arrangement, in which putative competitors share and use a single set of prices supplied through an entity that one or more of them controls. Although I understand that it may be unnecessary to examine additional “plus factors” under these circumstances, it is helpful to note that many of the other traditional indicia of coordinated action are present here.

48. One characteristic that facilitates coordinated price setting is the commoditization of the underlying product. In this case, the very product that Ingenix publishes presumes such commoditization. Its UCRs are built on the supposition that the same CPT code performed in the same location should have the same value and receive the same price. Indeed, the entire medical profession as well as all third party payers and institutional health care providers in the U.S. use the AMA-created CPT codes as their means of communicating services provided for a patient. “The American Medical Association (AMA) first developed and published CPT in 1966. The first edition helped encourage the use of standard terms and descriptors to document procedures in the medical record; helped communicate accurate information on procedures and services to agencies concerned with insurance claims.”<sup>113</sup> As explained by the AMA, “[t]he purpose of CPT is to provide a uniform language that accurately describes medical, surgical, and

---

<sup>113</sup> American Medical Association, “CPT Process – How a Code becomes a Code,” <http://www.ama-assn.org/ama/no-index/physician-resources/3882.shtml>, accessed April 1, 2010.

diagnostic services, and thereby serves as an effective means for reliable nationwide communication among physicians, and other healthcare providers, patients, and third parties.”<sup>114</sup> “The CPT Editorial Panel is responsible for maintaining the CPT code set. This panel is authorized by the AMA Board of Trustees to revise, update, or modify CPT codes, descriptors, rules and guidelines.”<sup>115</sup> Although there are thousands of CPT codes, a small portion of these cover the vast majority of medical care actually delivered. It has been estimated that just 10% of CPT codes in Ingenix data account for most medical services.<sup>116</sup>

49. Although medical providers are able to add modifiers to the CPT codes to indicate greater than normal time or complexity, these modifiers also consist of abbreviated codes that are standard across the industry. I understand that Ingenix has largely chosen to disregard such modifiers in developing its UCRs, as well as disregarding the professional qualifications of the person performing the service (specialist, general practitioner, nurse practitioner, etc.). As a result, the reimbursement system employed by defendant insurers (and executed through Ingenix) presupposes the simplest form of commoditization applicable to out-of-network medical services.

50. In addition to the uniformity surrounding medical services themselves, health care plan provisions are highly standardized. Indeed, it has been said that “[h]ealth insurance had seen no meaningfully different substitute products since the HMO was introduced thirty years ago.”<sup>117</sup> Several factors have motivated and preserved this uniformity. Standard coverage terms are key to the insurers’ ability to gather comparable loss data, the cornerstone of actuarial

---

<sup>114</sup> Ibid.

<sup>115</sup> Ibid.

<sup>116</sup> Siskin Report, p. 8. A similar set of codes is used for dental procedures, known as Code on Dental Procedures and Nomenclature (CDT), and is published and revised by the American Dental Association, American Dental Association, “Code on Dental Procedures and Nomenclature (CDT), <http://www.ada.org/3827.aspx> accessed April 5, 2010.

<sup>117</sup> Robinson, James C., “Consolidation and the Transformation of Competition in Health Insurance,” *Health Affairs*, 23:6, (2004), p. 20-21.

science. It is by evaluating losses previously experienced on policies with comparable coverage provisions that the insurer can most accurately establish its future premiums. The ability to group standardized policies and predict their performance is also the key to accessing the reinsurance market, the critical source of capital and liquidity for both Life & Health and Property & Casualty insurers. The industry's standardization of coverage also facilitates compliance with requirements imposed upon employers through state statute or regulation and the federal requirements of ERISA.<sup>118</sup> Finally, standardization of policy provisions has also been promoted as a means of enabling consumers and plan sponsors to compare products across insurers. Commercially available forms, guidelines and online systems have been designed to assist consumers in obtaining comparable quotes from multiple insurers by specifying the same policy provisions.<sup>119</sup> These mechanisms work successfully only because there is such a high degree of standardization across competing policies.

51. Communication among insurers is uniform, precise and complete using the Ingenix published schedules as well as other information flows peculiar to the insurance industry. Ingenix publishes CPT code-specific rates for each of the geographic areas throughout the U.S. known as "geozips," defined by the first three digits of the local zip code. As explained in Opinion 2, exact dollar values are set forth for several different percentile rankings. Every insurer purchasing a PHCS module for a particular geozip is informed of precisely the same values, and the same is true for every insurer purchasing MDR.<sup>120</sup> In other words, there is a consistent sharing of UCR rate information among insurers. The insurers using this information in their claims reimbursement processes control most of the health insurance premiums written

---

<sup>118</sup> B.T. Beam and J.J. McFadden, 1998, *Employee Benefits*, 5<sup>th</sup> ed: Dearborn Financial Publishing, Inc. 371, 374, 385.

<sup>119</sup> Voelker, Michael P., "Standards Race," *Technology Decisions*, May 2005.

<sup>120</sup> I understand that these two platforms use somewhat different methodologies to arrive at their reported values.

in the U.S. As stated in the Staff Report of the Commerce Committee investigation, since the late 1990s “the insurance industry has overwhelmingly relied on the Ingenix PHCS and MDR ‘data benchmarking’ products to estimate reimbursements for out-of-network charges.”<sup>121</sup> Indeed, an Executive of Blue Cross Blue Shield informed the Committee that he was aware “of no alternative sources of national health care charge databases.”<sup>122</sup> Many of the country’s largest health insurers have already been involved in settlements of claims with the New York State Attorney General pertaining to policies written in that state. In the course of the Commerce Committee investigation, Chairman Rockefeller sent information requests to the 18 other largest health insurers in the U.S. and all but one of them responded that they used Ingenix in connection with payment of out-of-network health and/or dental claims.<sup>123</sup> As a result, the Ingenix UCR data was broadly shared and utilized across the insurance industry.

52. For insurers who wished to monitor each other’s payments, a practice peculiar to the insurance industry known as “coordination of benefits” (COB) would enable them to do so. When a patient is covered by two policies, the COB system determines which insurer pays first, and how much the secondary payer will be required to contribute. This situation regularly arises when 1) a child is covered by insurance from each parent; 2) an adult is covered by his/her own policy as well as a partner’s policy 3) an adult is eligible for Medicare benefits while still maintaining private insurance, or 4) an adult has two jobs or a policy from both a current and a former job. The National Association of Insurance Commissioners has adopted model guidelines that standardize the process for handling these situations, based on rules using birthdates, employment status, child custody and other factors to select between the two

---

<sup>121</sup> Senate Staff Report, p. 4.

<sup>122</sup> Senate Staff Report, p. 4. Letter from William J. Marino, President and CEO, Horizon Blue Cross Blue Shield of New Jersey, to Senator John D. Rockefeller IV (April 23, 2009).

<sup>123</sup> Senate Staff Report, p. ii-iii.

policies.<sup>124</sup> Whichever plan is determined to be primary based on the application of these rules is ordinarily required to pay the claim exactly as it would have if there were no secondary coverage. The contribution of the secondary payor may then follow one of a number of procedures, either calculating its benefit as though there had been no COB, or subtracting from the amount of its ordinary reimbursement the amount already paid by the prior plan. In either case, the combined payments may never exceed the amount of the actual billed charges. When COB occurs, the insurers obtain extensive insight into each other's reimbursement practices. At a minimum, "[t]he secondary plan would know what the primary plan paid because it would have that plan's explanation of benefits (EOB) available."<sup>125</sup>

53. By contrast, communication with subscribers and providers is almost non-existent and the little communication that does exist has been found to be misleading.<sup>126</sup> The Ingenix system has been described as "a 'black box' for consumers who do not know their out-of-pocket cost of medical services before receiving them and has driven up costs when consumers cannot get the best value for their dollar before choosing a provider because they cannot comparison shop."<sup>127</sup> For example, consumers are almost never told that the UCR's which operate to cap their reimbursements have been calculated using exclusively data that the insurers themselves chose to contribute to the calculation. On the contrary, Ingenix has contractually committed to shield from disclosure the identity of those insurers who contribute data, including Aetna, CIGNA

---

<sup>124</sup> "To date, 45 states have adopted some form of COB provisions, usually either the NAIC Model COBA Regulation or various parts of the NAIC model. As a practical measure, however, nearly all insurance companies and employers include COB provision based on the NAIC model, and insurance regulators in states without codified COB requirements usually do not authorize insurance policies that include incompatible COB provisions." Helitzer, Jack B., ed. *Coordination of Benefits: Handbook*. Analysis, Resources ed. Vol. II. Washington DC: Thompson, 2007. Print. Employee Benefits Series. Tab 900 p. 3

<sup>125</sup> Helitzer, Jack B. "COB in the 1980s: How and Why It Works." *Benefits Quarterly* 1985 Second Quarter I.2 (1985): 1-7. p. 4

<sup>126</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 8.

<sup>127</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 8.

and UnitedHealth Group insurance companies among others.<sup>128</sup> Confidentiality agreements with participating insurers also strictly limit the use of the PHCS and MDR data once distributed, mandate that its secrecy be maintained, and provide guidelines on exactly how much may be said in response to provider or subscriber inquiries.<sup>129</sup> Unable until recently even to determine how UCRs had been set, these class members have been in no position to defend themselves by competitively shopping, comparing rates, or even checking the accuracy of their insurer's conclusion. This lack of information has thus facilitated defendants in fixing and suppressing reimbursements for out-of-network services through their coordinated action.

54. Finally, defendants were unlikely to face cheating or defection from other insurers who used Ingenix. Any such efforts would be readily detectable and could be easily punished by exclusion from further use of Ingenix products. As noted in Opinion 1, those products contributed to insurer profitability by lowering claims payments. As a result, there would be little incentive to defect. Doing so would require the insurer to adopt new procedures for determining UCRs, a process that requires extensive data and would therefore likely require the participation of multiple insurers in a new data pooling endeavor. Alternatively, the insurer could continue to use Ingenix but pay reimbursements at the top of, or above, the Ingenix reported distributions. However, this decision would only benefit the insurer if it were to make its practice public, explaining to subscribers that it was paying a rate higher than others for out-of-network services and therefore had a more attractive insurance product. As discussed in Opinion 5, it appears that no insurer ever sought to distinguish itself in this way, which is not surprising given that its defection would be immediately apparent to everyone else in the industry.

---

<sup>128</sup> Second Amended Complaint, ¶184.

<sup>129</sup> "Customer may disclose to providers or clients a single fee per code from the Data, but only as required and necessary in the claim administration and review process," Senate Staff Report, p.5 and Exhibit B: "Prevailing Healthcare Charges System (PHCS) Product Schedule," p. 3.



**E. *Opinion #5*— Defendants Acted Against Their Unilateral Self Interest by Failing to Disclose and Compete Based Upon UCRs as They Do With Other Policy Provisions**

55. Another commonly accepted indication of collusion is the failure by individual participants to act in their unilateral self interest. There are two examples of such behavior in this case. First, Ingenix's data publication business has been extremely successful, contributing to the profits of its parent UnitedHealth Group. In a competitive environment, this should attract other entrants proposing to offer to insurers a comparable or superior data product, including one that reported more objectively accurate (and, thus, higher) UCRs. The logical entrants would include the major health insurers who already possess large volumes of claims data, including Aetna and CIGNA. However, neither they nor any other insurer has apparently attempted to access this business opportunity. Second, health insurers regularly compete based on differences in specific plan provisions such as lower co-pay, lower out of pocket maximums and higher lifetime coverage caps. These terms are systematically displayed to consumers and health plan sponsors; more favorable terms are understood to merit higher premiums for which the public has shown itself willing to pay. As a result, in a competitive environment, an insurer wishing to differentiate itself and promote its product might be expected to offer more favorable reimbursement for out-of-network services. This could be done in any one of a number of ways: by calculating such reimbursements without reference to Ingenix or simply by agreeing to pay a fixed margin *above* the upper value in the Ingenix distribution. I am not aware of any insurer having sought to distinguish itself in this way, despite the obvious competitive advantages of doing so.

56. The data publication business has proven very profitable for Ingenix and its corporate parent, UnitedHealth Group. In 2006, United Health Group's operating margin was

announced as 9.8% while the Ingenix operating margin was 18.4%.<sup>130</sup> For 2007, operating margins were announced to be 10.6% for UnitedHealth Group and 20.4% for Ingenix.<sup>131</sup> The same relationship held true in the next year, despite the commencement of the New York Attorney General's investigation. United Health Group's operating margin in that year was reported to be 7.8% while Ingenix, despite its legal troubles, had operating margins of 14.8%.<sup>132</sup> In other words, Ingenix was consistently twice as profitable as UnitedHealth Group as a whole. Over the three years 2006 through 2008, Ingenix generated \$3.81 billion in reported revenues and \$671 million in reported earnings.<sup>133</sup> In 2009, Ingenix's operating margins (13.5%) were still nearly double that of UnitedHealth Group overall (7.3%).<sup>134</sup> These earnings should have been sufficient to attract data competition from other insurers with extensive claims data and experience, but no such competition surfaced.

57. Insurers including Aetna and CIGNA have benefitted throughout the class period from confusion and opacity surrounding reimbursement for out-of-network services. As noted in Congressional testimony, "an out-of-network doctor ...is one of the most important consumer purchases, yet pricing information is practically nonexistent in the out-of-network setting. The lack of transparency in the health care industry is striking. Consumers need more information about how they will be reimbursed and they need it earlier in the decision-making process. A

---

<sup>130</sup> UnitedHealth Group, 2008, "UnitedHealth Group Reports Record Fourth Quarter and Full Year 2007 Results," accessed at [http://www.unitedhealthgroup.com/invest/2007/4q2007release\\_rv.pdf](http://www.unitedhealthgroup.com/invest/2007/4q2007release_rv.pdf), on April 5, 2010. Note that Ingenix products include an array of additional databases and services in addition to the database products discussed in this report.

<sup>131</sup> UnitedHealth Group, 2008, "UnitedHealth Group Reports Record Fourth Quarter and Full Year 2007 Results," accessed at [http://www.unitedhealthgroup.com/invest/2007/4q2007release\\_rv.pdf](http://www.unitedhealthgroup.com/invest/2007/4q2007release_rv.pdf), on April 5, 2010.

<sup>132</sup> UnitedHealth Group, 2009, "UnitedHealth Group Reports 2008 Financial Results," accessed at <http://www.unitedhealthgroup.com/invest/2008/4q2008release.pdf>, on April 5, 2010.

<sup>133</sup> UnitedHealth Group, 2008, "UnitedHealth Group Reports 2008 Financial Results," accessed at <http://www.unitedhealthgroup.com/invest/2008/4q2008release.pdf>, on April 5, 2010; UnitedHealth Group, 2008, "UnitedHealth Group Reports Record Fourth Quarter and Full Year 2007 Results," accessed at [http://www.unitedhealthgroup.com/invest/2007/4q2007release\\_rv.pdf](http://www.unitedhealthgroup.com/invest/2007/4q2007release_rv.pdf), on April 5, 2010.

<sup>134</sup> UnitedHealth Group, 2010, "UnitedHealth Group Reports 2009 Financial Results," accessed at <http://www.unitedhealthgroup.com/invest/2009/UNH-2009-release.pdf>, on April 5, 2010.

website tool available to the public, showing common health care services and the market rates in the relevant geographic areas, would be a giant leap forward in the battle for transparency in health care.”<sup>135</sup> Even Ingenix’s own CEO acknowledged in his Congressional testimony that “this has been an awfully confusing process for the consumer. I think our clients, both physicians and health plans, would consider that a failure, a very difficult area of health care, no doubt, but a failure.”<sup>136</sup>

58. This very confusion presented the opportunity for any insurer to distinguish itself and thereby obtain a competitive advantage. Were it not for the strict non-disclosure provisions mandated by Ingenix, such an insurer could compare its own higher UCRs with those set by Ingenix and tout this advantage to potential policy subscribers. However, even in the absence of such an explicit comparison, the insurer could report an increase in its own reimbursement rates, compare its rates to those of other insurers, or merely agree that it would rely on Ingenix but would pay the top of its reported values or add a premium thereto. Publishing information about its UCRs would not only, as noted in the Congressional testimony cited above, “be a giant leap forward in the battle for transparency in health care” but would also *attract new business*. Americans have already overwhelmingly demonstrated their willingness to pay more for policies that cover out-of-network care; it is likely that they would pay additionally for policies which fully and fairly reimbursed those services. The failure to pursue this opportunity and the decision, instead, to remain mute regarding reimbursement for out-of-network services, is credible confirmation of the existence of a conspiracy.

---

<sup>135</sup> NY OAG Report, p. 7.

<sup>136</sup> Mr. Andy Slavitt CEO of Ingenix and Senator Mark Pryor, Arkansas “Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part II.” Hearing before the Committee on Commerce, Science, and Transportation US Senate. March 31, 2009, p. 14.

**F. *Opinion #6— The Result of Defendants’ Conduct is Suppression of Reimbursements Paid to Class Members for Out-of-Network Services; This Impact Can be Proven with Information Common to the Class***

59. The amounts that participating insurers actually reimburse for out-of-network services are systematically related to the rates published by Ingenix. The Commerce Committee staff report explains: “The general practice of insurers has been to pay consumers an allowance equal to a certain percentile level provided in the Ingenix module. For example, many insurers promise to reimburse consumers at the 80<sup>th</sup> percentile for out-of-network services. If a consumer chooses to go out-of-network to receive a colonoscopy from a doctor located in Geozip 301, the insurer pays \$907 [as that is the 80<sup>th</sup> percentile] for the service, no matter what the doctor actually charges for the colonoscopy. The consumer pays the co-payment, co-insurance, or deductible due on the \$907 allowance, and then pays 100% of the difference between the \$907 allowance and the doctor’s actual charge.”<sup>137</sup> To the extent that the Ingenix UCR was understated, the total reimbursement would be reduced by a mathematically calculable amount. The Expert Reports of Dr. Bernard Siskin and Dr. Stephen Foreman describe in detail how the data scrubbing and statistical practices of Ingenix and its contributing insurers gave rise to that understatement in Ingenix-reported UCRs.

60. In the course of the New York Attorney General’s investigation, actual claims data was analyzed to estimate the difference between Ingenix UCRs and the actual prevailing cost for particular CPT codes, determined without statistical bias.<sup>138</sup> Results for Erie County New York appear in the table below, copied from the transcript of the subsequent Congressional hearings. For each of the six CPT codes reported in this table, the prevailing rate estimated by the New York

---

<sup>137</sup> Senate Staff Report, p. 8.

<sup>138</sup> John D Rockefeller, Senator WV. “Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part II.” Hearing before the Committee on Commerce, Science, and Transportation US Senate. March 31, 2009, pp. 33-34.

Attorney General with the help of health care economists was above even the upper range of the distribution reported by Ingenix. Depending on the percentile adopted from the Ingenix distribution, the understatement of UCRs ranged from a low of 7% to a high of 28%.

Payments for Doctor Visits			
Erie County, NY (2007)			
Doctor Office Visit Codes	Ingenix "usual and customary" Reimbursement Rate	NYAG Estimate of Prevailing Cost	Difference (%)
99211	\$36–\$37	\$45	18–20%
99212	\$53–\$61	\$68	10–22%
99213	\$70–\$78	\$84	7–17%
99214	\$105–\$122	\$130	6–19%
99215	\$145–\$182	\$200	9–28%
99245	\$276–\$340	\$373	9–26%
<i>Source: State of New York, Office of the Attorney General, Health Care Report: The Consumer Reimbursement (Jan. 13 2009), 20.</i>			

61. It was, in part, these facts that caused the Commerce Committee staff to conclude that “the less-than-arms-length relationship between Ingenix and the insurance industry led to reimbursement practices that cost American consumers billions of dollars.”<sup>139</sup> The extent of these injuries can be proved through the use of actual claims data collected by insurers and provided to Ingenix, which can then be compared to the Ingenix-published UCRs. I note that other parties have apparently been able to approximate the degree of underpayment. For example, as part of its settlement of class action litigation brought in New Jersey, “HealthNet agreed to provide \$215 million to policyholders who had been under-reimbursed for out-of-network health care services. Health Net also agreed to temporarily increase its Ingenix-derived reimbursement amounts *by 14.5%*” (emphasis added).<sup>140</sup>

62. The fact that prevailing rates can be accurately and fairly estimated is borne out by the efforts of the newly formed non-profit organization that has taken over the PCHS/MDR

<sup>139</sup> Senate Staff Report, p. ii.

<sup>140</sup> Senate Staff Report, p. 10.

database. Explaining the transfer of the database, a representative of the New York Attorney General's Office has said: "What we anticipate is that qualified people, from the University, who are experts in these areas will make independent decisions about what kinds of information should go into the database, what the sources of that information should be, and how it should be collected, audited—which, by the way, Ingenix did not audit its data, either—but, what kinds of protocols and sampling are appropriate. We want independent experts to do that, and to make those decisions independently, with an incentive that they're getting it right."<sup>141</sup> In other words, the problem is not that representative charges are impossible to calculate; it is merely that Ingenix and the insurers who colluded with it chose not to do so.

## **VI. Conclusion**

63. In summary, it is clear that Ingenix was used pervasively throughout the Class period to determine the amount that would be reimbursed to subscribers and/or their providers holding an Assignment of Benefits. Indeed, Ingenix had a monopoly over the data market; there do not appear to have been any other competing products. It is also clear that reimbursements were generally calculated by selecting a fixed percentile in the distribution of UCRs reported by Ingenix. As a result, suppression of Ingenix-reported UCRs results in a suppression of actual reimbursements for out-of-network services.

64. Aetna, CIGNA and UnitedHealth Group all participated in this practice which benefitted them by artificially lowering claims payments at a cost of only pennies per insured life to implement. The fact that these and other participating insurers have collectively provided so little disclosure about their own reimbursement rates over the class period has made it harder to discover this problem and has deprived subscribers and providers of the ability to protect

---

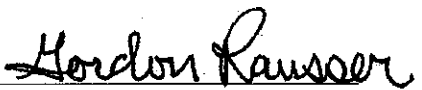
<sup>141</sup> Lacewell Testimony, Senate Commerce Committee Hearing, p. 48.

themselves. Such behavior is inconsistent with the insurers' unilateral self interest which would have been served by promoting a more complete coverage of out-of-network services and thus attracting new subscribers who would likely be willing to pay higher premiums. Furthermore, the fact that none of the insurers has attempted to market a competing data product despite the large profits reaped by Ingenix and its parent is evidence that they sacrificed their unilateral self interest in favor of the gains to be had from coordinated action.

65. The injuries suffered by the class can be computed using available data, as several other efforts have already shown.

Respectfully Submitted,

April 6, 2010

  
Gordon Rausser, Ph.D.

# Exhibit A

## Materials Relied Upon



**Exhibit A**  
**Materials Relied Upon**

**Pleadings**

Second Joint Consolidated Amended Class Action Complaint and Demand for Jury Trial, *In Re: Aetna UCR Litigation*, USDC N.J., MDL No. 2020, Master File No. 2:07-CV-3541

Consolidated Amended Class Action Complaint, *Dalery Franco, et. al. v. Connecticut General Life Insurance Co., Cigna Corporation et. al.*, USDC N.J., Case No. 07-CV-6039

Fourth Amended Complaint, *In The Matter Of: American Medical Association, et al. v. United Healthcare Corporation, et al.*, S.D.N.Y. (No. 00 Civ. 2800).

**Expert Reports**

Expert Report of Stephen Foreman, Ph.D., JD, MPA, dated April 6, 2010. Submitted herein.

Plaintiff's Expert Report of Bernard R. Siskin, Ph.D., dated April 6, 2010. Submitted herein.

**Hearings**

Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part I, Hearing before the Committee on Commerce, Science, and Transportation, US Senate, March 26, 2009.

Deceptive Health Insurance Industry Practices: Are Consumers Getting What They Paid for? – Part II, Hearing before the Committee on Commerce, Science, and Transportation, US Senate, March 31, 2009.

National Association of Insurance Commissioners, “Testimony of America’s Health Insurance Plans (AHIP) before the National Association of Insurance Commissioners’ Market Regulation and Consumer Affairs (D) Committee and Health Insurance and Managed Care (B) Committee,” Public Hearing on Usual, Customary and Reasonable (UCR) Practices, September 24, 2009.

**Correspondence**

Letter from William J. Marino, President and CEO, Horizon Blue Cross Blue Shield of New Jersey, to Senator John D. Rockefeller IV, dated April 23, 2009.

### Articles, Books and Reports

American Medical Association Division of Economic and Health Policy Research, "Competition in Health Insurance: A Comprehensive Study of U.S. Markets, 2009 Update," American Medical Association, 2009.

A.M. Best Company, "Best's Aggregates & Averages, Life/Health, United States & Canada, 2005 Edition," "Writers of A&H, Ranked by 2004 Net Premiums Written."

A.M. Best Company, "A.M. Best Affirms Ratings of CIGNA Corporation and Its Subsidiaries; Revises Outlook to Negative News Release, November 14, 2008.

B.T. Beam and J.J. McFadden, *Employee Benefits*, 5<sup>th</sup> ed: Dearborn Financial Publishing, Inc., 1998.

Buchmueller, Thomas C. and Sabina Ohri, "Health Insurance Take-up by the Near-Elderly," *Health Services Research*, 41:6 (December 2006).

Cromwell, Jerry, Janet B. Mitchell, Kathleen A. Calore and Lisa Iezzoni, "Sources of Hospital Cost Variation by Urban-Rural Location," *Medical Care*, 25:9 (September 1987).

Cunningham, Peter J., "The Growing Financial Burden of Health Care: National and State Trends, 2001-2006," *Health Affairs*, 29:5 (May 2010).

Hall, M.A., and Schneider, C.E., "Patients as Consumers: Courts, Contracts, and the New Medical Marketplace," *Michigan Law Review*, 106 (February 2008):643-689.

Helitzer, Jack B., ed., *Coordination of Benefits: Handbook*. Analysis, Resources ed. Vol. II. Washington DC: Thompson, 2007. Print. Employee Benefits Series.

Helitzer, Jack B. "COB in the 1980s: How and Why It Works." *Benefits Quarterly*, Second Quarter I.2 (1985).

Helmar, Michael. "U.S. Industry Outlook: Hard Truths on Health Reform," *Economic Analysis, Data, and Forecasting and Credit Risk Management:: Moody's Economy.com*. Moody's Economy.com, October 20, 2009, [http://www.economy.com/dismal/article\\_free.asp?cid=118840](http://www.economy.com/dismal/article_free.asp?cid=118840).

Himmelstein, David U., Deborah Thorne, Elizabeth Warren, Steffie Woolhandler, "Medical Bankruptcy in the United States, 2007: Results of a National Study," *The American Journal of Medicine*, 122:8 (August 2009).

Lacewell, Linda A., James E. Dering, Kathryn E. Diaz, Brant Campbell and Sandra Rodriguez, "Health Care Report, The Consumer Reimbursement System is Code Blue," January 13, 2009, State of New York Office of the Attorney General, [http://www.ag.ny.gov/bureaus/health\\_care/HIT2/report.html](http://www.ag.ny.gov/bureaus/health_care/HIT2/report.html).

Manning, Willard G., Joseph P. Newhouse, Naihua Duan, Emmett B. Keeler, Arleen Leibowitz, and M. Susan Marquis, "Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment," *The American Economic Review*, 77.3 (June 1987)

Max, Sarah, "The Fuzzy Math of Health Insurance," *CNN Money*, August 30, 2005.

Montagne, C., "Bargaining Health Benefits in the Workplace: An Inside View," *The Milbank Quarterly*, 80:3 (2002).

New York State Attorney General, "Attorney General Cuomo Announces Final Agreement in Historic Reform of Health Insurance Industry – Every Insured New Yorker Now Protected from Corrupt Reimbursement System," June 18, 2009, [http://www.ag.ny.gov/media\\_center/2009/june/june18a\\_09.html](http://www.ag.ny.gov/media_center/2009/june/june18a_09.html).

Parekh, R., "Health Plan M&A Reshapes Market; Deals create Huge Networks," *Business Insurance* (December 2005).

Randall, Vernellia R., "Historical Background: Managed Care, Utilization, and Financial Risk Shifting: Compensating Patients for Health Care Cost Containment Injuries," *University of Puget Sound Law Review*, 17:1 (Fall 1993), <http://academic.udayton.edu/health/02organ/manage01c.htm>.

Robinson, James C., "Consolidation and the Transformation of Competition in Health Insurance," *Health Affairs*, 23:6.

Royalty, Anne Beeson and Neil Solomon, "Health Plan Choice: Price Elasticities in a Managed Competition Setting," *Journal of Human Resources*, 34:1, (Winter 1999)

United States Senate, Committee on Commerce, Science, and Transportation, Office of Oversight and Investigations, *Underpayments to Consumers by the Health Insurance Industry*, Staff Report for Chairman Rockefeller, June 24, 2009.

UnitedHealth Group, Form 10-K, fiscal year ended December 31, 2009.

UnitedHealth Group, "UnitedHealth Group Reports Record Fourth Quarter and Full Year 2007 Results," 2008, [http://www.unitedhealthgroup.com/invest/2007/4q2007release\\_rv.pdf](http://www.unitedhealthgroup.com/invest/2007/4q2007release_rv.pdf)

UnitedHealth Group, "UnitedHealth Group Reports 2008 Financial Results," 2009, <http://www.unitedhealthgroup.com/invest/2008/4q2008release.pdf>.

UnitedHealth Group, "UnitedHealth Group Reports 2009 Financial Results," 2010,  
<http://www.unitedhealthgroup.com/invest/2009/UNH-2009-release.pdf>

United States of America Department of Justice & Federal Trade Commission, *Improving Health Care: A Dose of Competition*, July 2004.

Van Vliet, Rene C. J. A., "Deductibles and Health Care Expenditures: Empirical Estimates of Price Sensitivity Based on Administrative Data," *International Journal of Health Care Finance and Economics*, 4.4 (December 2004).

Voelker, Michael P., "Standards Race," *Technology Decisions*, May 2005.

Wojcik, Joanne, "Ingenix databases used by insurers, TPAs to calculate out-of-network disbursements," *Business Insurance*, February 18, 2008,  
<http://www.businessinsurance.com/article/20080217/ISSUE01/100024129>.

Wojcik, Joanne, "Health Care merger Activity Continues," *Business Insurance*, December 12, 1998.

Wojcik, Joanne, "Medical bankruptcies surge as coverage erodes," *Business Insurance*, June 22, 2009.

Wojcik, Joanne, "New database to replace Ingenix," *Business Insurance*, November 2, 2009,  
<http://www.businessinsurance.com/article/20091101/ISSUE01/311019972>.

## **Websites**

American Dental Association, "Code on Dental Procedures and Nomenclature (CDT)," accessed April 5, 2010, <http://www.ada.org/3827.aspx>.

America's Health Insurance Plans, "Board of Directors," website accessed April 6, 2010,  
<http://www.ahip.org/content/default.aspx?bc=31|42|54>.

American Medical Association, "CPT Process – How a Code becomes a Code," accessed April 1, 2010, <http://www.ama-assn.org/ama/no-index/physician-resources/3882.shtml>.

Ingenix, "PHCS®," website accessed April 6, 2010,  
<http://www.ingenix.com/Products/WorkersComp/DataBenchmarkingPricingWC/PHCS/>.

Ingenix, "Ingenix PHCS® Benchmarking Databases," website accessed April 6, 2010,  
[http://www.ingenix.com/content/attachments/PHCSbenchmarking\\_PS.pdf](http://www.ingenix.com/content/attachments/PHCSbenchmarking_PS.pdf).

Ingenix, "Benchmarking Services: Comparative Charge and Reimbursement Benchmarks," website accessed April 6, 2010,  
<http://www.ingenix.com/content/attachments/comparative%20charge%20benchmarks.pdf>

# Exhibit B

## Curriculum Vita of Gordon Rausser, Ph.D.



**GORDON C. RAUSSER, Ph.D.**  
Senior Consultant

OnPoint Analytics, Inc.  
2000 Powell Street, Suite 860  
Emeryville, CA 94608  
(510) 643-9942 Phone  
(510) 643-0287 Fax

Robert Gordon Sproul  
Distinguished Professor,  
University of California, Berkeley

Postdoctoral Fellowship,  
Department of Economics  
and Statistics,  
University of Chicago

Ph.D., Agricultural and  
Resources Economics,  
University of California, Davis

**AWARDS AND HONORS**

Selected as Editor of Annual Review of Resource Economics, 2007-2011  
Round Table Group member, 2009-  
California State University, "Award for Top Dog" Alumni of the Year 2009  
Business Advisory Board, Mendel Biotechnology, 2008-  
Editorial Council, *Strategic Behavior and the Environment*, Now Publishing  
Robert Gordon Sproul Distinguished Professor, University of California, Berkeley, 1986-  
College of Natural Resources Citation, University of California, Berkeley, 2004  
Galbraith Forum Lecture, 2003  
Senior Economic Consultant and Founder, OnPoint Analytics, 2006-2009  
Research Fellow and Member of Research Council, Rural Development Research Consortium,  
University of California, Berkeley, 2002  
AAAS, Chair of the Electorate Nominating Committee for the Section on Social, Economic, and  
Political Sciences, 2001-2002  
AAEA Quality of Research Discovery Award, 2001  
USDA Secretary of Agriculture Award for outstanding accomplishments in the areas of agricultural  
public policy research and formulation, 2000  
Senior Economic Consultant, Charles River Associates, 2000-2005  
Cofounder and Principle, LECG, Inc., 1990-2000  
UC Berkeley, Board of Trustees, 1994-2001  
AAEA Fellows Address, 1999  
Member, Economic Discipline Board, Fulbright Scholarship Awards, 1989-96  
WAEA Outstanding Published Research Award ("Price Distorting Compensation Serving the  
Consumer and Taxpayer Interest"), 1994  
Member, Board for International Development Studies, Fletcher School of Law and Diplomacy,  
Tufts University, 1992-94  
Fellow of the American Association for the Advancement of Science, 1993  
AAEA Publication of Enduring Quality Award for contributions to environmental economics,  
statistical decision theory, and natural resource analysis, 1993  
AAEA Distinguished Policy Contribution Award for econometric analysis of public policies, 1993

---

AAEA Outstanding Journal Article Award Finalist (“Productive and Predatory Public Policies: Research Expenditures and Producer Subsidies in Agriculture”), 1992  
 Editor, *Agricultural Management and Economics*, Springer-Verlag, 1988–92  
 Fellow of the American Statistical Association, 1991  
 Agency for International Development, Superior Unit Citation Award, 1990  
 Fellow of the American Agricultural Economics Association, 1990  
 Special Recognition, “Outstanding Professional Research Contributions.” In Gail L. Cramer and Clarence W. Jones, *Agricultural Economics and Agribusiness*, 3rd edition, John Wiley and Sons, 1990  
 Chief Economist, Agency for International Development, 1988–1990  
 AAEA Outstanding Journal Article Award Finalist (“Incomplete Markets and Government Policy”), 1989  
 Director: AAEA, university, and departmental Outstanding Dissertations Awards (9), 1979–2005  
 Chairman, Intergovernmental Consultative Group on Indonesia, The Hague, June, 1989  
 Cofounder and President of the Institute for Policy Reform, Washington, DC, 1989–1994  
 Founder of the IPR Fellow Program, 1989  
 Teaching and course materials in agriculture policy selected for publication in *Economics Reading Lists, Courses, Outlines, Exams, Puzzles, and Problems*, compiled by Edward Tower, Duke University, July 1981  
 Chairman, Berkeley Department of Economics and All Economic Programs Evaluation Committee, 1987–88  
 Senior Economist, Council of Economic Advisors, 1986–87  
 AAEA Award for Best Published Research (“Macroeconomic Linkages, Taxes, and Subsidies in the U.S. Agricultural Sector”), 1986  
 Editor, *American Journal of Agricultural Economics*, 1983–1986  
 Resident Fellow, Resources for the Future, National Center for Food and Agricultural Policy, 1984–85  
 Associate Editor, *Journal of Economic Dynamics and Control*, 1978–1982  
 Associate Book Review Editor, *Journal of the American Statistical Association*, 1974–1982  
 AAEA Award for Best Journal Article (“Commodity Price Forecasting With Large-Scale Econometric Models and the Futures Markets”), 1982  
 AAEA Honorable Mention Award for Best Published Research (“Dynamics of Agricultural Systems: Economic Prediction and Control”), 1980  
 Editorial Board, *American Journal of Agricultural Economics*, 1977–1980  
 AAEA Outstanding Journal Article Award Finalist (“Active Learning, Control Theory, and Policy”), 1978  
 WAEA Award for Best Published Research (“Firm Growth Policies Under Different Pollution Abatement, Production, and Financial Structures”), 1978  
 Faculty Excellence in Teaching Award, Harvard University, 1978  
 Associate Editor, *Journal of the American Statistical Association*, 1973–1977  
 AAEA Award for Best Published Research (“Stochastic Control of Environmental Externalities”), 1976

Commissioned by the AAEA to prepare a monograph, "Systems Analysis and Simulation Techniques," 1973

Ford Foundation Visiting Scholar, Argentina, 1972

Highest Honors, Ph.D. Degree, University of California, Davis, 1971

Doctoral Dissertation Award for Best Thesis, University of California, Davis, 1971

**Other Awards:**

Member of Alpha Zeta; Phi Kappa Phi; Blue Key; National Defense and Education Act Fellowship Grant; Blue Key Award for Outstanding Graduate; Greek Man of the Year Award; Alpha Zeta Alumni Award to the Outstanding Graduating Senior; College Outstanding Leadership Award; Alpha Zeta President; Alpha Gamma Rho President; Agricultural Executive Council President; Senior Class President; Summa Cum Laude.

**Listed in:**

*American Men and Women of Science*  
*Community Leaders of the World*  
*Dictionary of International Biography*  
*Directory of Distinguished Americans*  
*Men of Achievement*  
*Personalities of America*  
*Who's Who in America*  
*Who's Who in American Colleges and Universities*  
*Who's Who in American Education*  
*Who's Who in California*  
*Who's Who in Finance and Business*  
*Who's Who in Finance and Industry*  
*Who's Who in Technology*  
*Who's Who in the West*  
*Who's Who in the World*  
*Who's Who Internationally*  
*Who's Who Among Executives and Professionals*

**EDUCATION**

Postdoctoral Fellowship, University of Chicago, Chicago, IL, 1972–73, Departments of Economics and Statistics

Ph.D., University of California, Davis, 1971, Highest Honors, Agricultural Economics

M.S., University of California, Davis, 1968, Highest Honors, Agricultural Economics

B.S., California State University, Fresno, 1965, Summa Cum Laude, Agriculture and Statistics

**ACADEMIC AND GOVERNMENT POSITIONS**

1986– Robert Gordon Sproul Distinguished Professor, University of California, Berkeley

1979– Professor of Agricultural and Resource Economics, University of California, Berkeley

1994–00 Dean, College of Natural Resources, University of California, Berkeley

1990–94 President, Institute for Policy Reform



- 1993–94 Chairman, Department of Agricultural and Resource Economics, University of California, Berkeley
- 1972–93 Visiting Faculty Appointments  
 Hebrew University, Israel (1993)  
 Australian National University (1987)  
 Monash University, Australia (1987)  
 Ben Gurion University, Israel (1980)  
 Hebrew University, Israel (1978)  
 University of Illinois (1974)  
 University of Chicago (1972–73)
- 1988–90 Chief Economist, Agency for International Development, Washington, DC
- 1986–87 Special Consultant and Senior Staff Economist, Council of Economic Advisors, Washington, DC
- 1984–85 Senior Resident Fellow, Resources for the Future, Washington, DC
- 1979–85 Chairman, Department of Agricultural and Resource Economics, University of California, Berkeley
- 1982–84 Chairman, Executive Committee, Giannini Foundation, University of California, Berkeley
- 1975–78 Professor of Managerial Economics and Statistics, Harvard University
- 1974–75 Professor of Economics and Statistics, Iowa State University
- 1971–74 Full Professor of Agricultural Economics (offered), University of California, Davis (1974)  
 Associate Professor of Agricultural Economics, University of California, Davis (1972)  
 Assistant Professor of Agricultural Economics, University of California, Davis (1971)

### **FIELDS OF INTEREST**

Agricultural economics	Natural resource and environmental
Collective decision-making	economics
Futures and options markets	Public policy and economic regulation
Industrial organization and antitrust analysis	Quantitative models
Law and economics	Statistical decision theory
Applied econometrics	Development economics

### **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

American Academy of Arts and Sciences  
 American Academy of Political and Social Science  
 American Agricultural Economics Association  
 American Association for the Advancement of Science  
 American Economics Association  
 American Statistical Association  
 Econometric Society  
 Institute of Management Science  
 International Agribusiness Management Association

International Agricultural Economics Association  
Mathematical Association of America  
Operations Research Society  
Western Agricultural Economics Association

### **PATENTS**

“Analysis and Methodology for Selecting Capital-efficient Film-asset Portfolios,” May 2006

“Integrated Electronic Exchange of Structured Contracts (IEESC) and Dynamic Risk-Based Transaction Permissioning,” Provisional Patent Application, 2001

### **PUBLICATIONS**

#### **Articles in Refereed Journals**

“Interactions between Incentive Instruments: Quality Attributes in Processing Tomatoes” (with Rachael E. Goodhue and Sandeep Mohaptra). Forthcoming in *American Journal of Agricultural Economics*.

“Property Rights and Water Transfers: Bargaining Among Multiple Stakeholders” (with Susan Stratton Sayre and Leo K. Simon). Forthcoming in *Strategic Behavior and the Environment*.

“Complementarities and Spillovers in Mergers: An Empirical Investigation Using Patent Data” (with Alan Marco). Forthcoming in *Economics of Innovation and New Technology*.

“Political Institutions, Governance Structures, and Food Policy” (with Johan Swinnen). Forthcoming in *American Journal of Agricultural Economics*.

“The Marginal Willingness-to-Pay for Health Related Food Characteristics” (with Linda Thunstrom). Forthcoming in *Food Economics*.

“Public-Private Partnerships: Goods and the Structure of Contracts” (with Reid Stevens), *Annual Review of Resource Economics* 1, 75-98, 2009.

“Agri-Environmental Programs in the European Union and United States” (with K. Baylis, S. Peplow and L. Simon). *Eurochoices*, forthcoming.

“Unintended Consequences: The Spillover Effects of Common Property Regulations” (with Marty Kovach, Ryan Stifter and Stephen Hamilton). *Marine Policy*, 33(1), 24-39, 2009.

“Pollution and Land Use: Optimum and Decentralization” (with Richard Arnott and Oded Hochman), *Journal of Urban Economics*, 64(2), 390-407, 2008.

“The Food Price Boom and Bust”, (with Colin Carter and Aaron Smith) in *ARE Update* Vol 12 No. 2 (2008), pp. 2-4.

“Agri-Environmental Programs in the EU and United States: A Comparison” (with Kathy Baylis, Stephen Peplow and Leo Simon), *Ecological Economics* 65, 753-764, 2008.

- 
- “Ownership and Control in Mexico’s Community Forestry Sector” (with C. Antinori). *Economic Development and Cultural Change*, 57(1), 101-136, 2008.
- “Public vs. Private Good Research at Land-Grant Universities” (with Leo Simon and Reid Stevens). *Journal of Agricultural and Food Industrial Organization*, 6(2), Article 4, 2008.
- “The Role of Patent Rights in Mergers: Consolidation in Plant Biotechnology” (with Alan Marco), *American Journal of Agricultural Economics*, 90 (1), 133–151, 2008.
- “Collective Choice and Community Forest Management in Mexico: an Empirical Analysis” (with Camille Antinori), *Journal of Development Studies*, 43(3): 512-536, 2007.
- “General Equilibrium in Vertical Market Structures: Overselling versus Overbuying” (with Richard Just), *Research in Law and Economics*, 23: 149-181, 2007.
- “Do Incentives for Quality Matter?” (With Corinne Alexander and Rachael E. Goodhue), *Journal of Agricultural and Applied Economics*, 39(1), 1-15, 2007.
- “Does Food Processing Contribute to Childhood Obesity Disparities” (with Bo MacInnis), *American Journal of Agricultural Economics*, 87(5): 1154-8, December 2005.
- “Including Non-Trade Concerns: The Environment in EU and U.S. Agricultural Policy,” (with Kathy Baylis and Leo Simon). *International Journal of Agricultural Resources, Governance and Ecology*, Special Issue on Non-Trade Concerns, 4(3/4):262–276, 2005.
- “Estimating Statistical Properties of Political Economic Decisions” (with Diana M. Burton and H. Alan Love), *Applied Economics* 36:1489–1499, 2004
- “Public-private Partnerships Needed in Horticultural Research and Development” (with Holly Ameden), *California Agriculture* 58(2):116–119, April–June 2004.
- “Value Differentiation” (with Rachael Goodhue), *Journal of Agricultural and Resource Economics* 28(3):375–395, December 2003.
- “Agricultural Biotechnology’s Complementary Intellectual Assets” (with Gregg Graff and Arthur Small), *Review of Economics and Statistics* 85 (2):349–63, May 2003.
- “Stigmatized Asset Value: Is it Temporary or Long-term?” (with Jill J. McCluskey), *Review of Economics and Statistics* 85 (2):276–85, May 2003.
- “Hazardous Waste Sites and Housing Appreciation Rates” (with Jill J. McCluskey), *Journal of Environmental Economics and Management* 45:166–176, March 2003.
- “Neighborhood Effects and Compensation for Property Value Diminution” (with Jill J. McCluskey and Ray G. Huffaker), *Law & Policy* 24(1):37–50, January 2002.
- “Rules, Policy and Rent Seeking: A Cross-border Comparison” (with Kathy Baylis), *Canadian Journal of Agricultural Economics* 49(4):493–504, December 2001.

- “A Bargaining Model to Simulate Negotiations Between Water Users” (with S. Thoyer, S. Morardet, P. Rio, L. Simon and R. Goodhue), *Journal of Artificial Societies and Social Simulation* 4(2), March 2001.
- “Estimation of Perceived Risk and Its Effect on Property Values” (with Jill J. McCluskey), *Land Economics* 7(1):42–55, February 2001.
- “Public-Private Alliances in Biotechnology: Can They Narrow the Knowledge Gaps Between Rich and Poor?” (with Holly Ameden and Leo K. Simon), *Food Policy* 25:499–513, 2000.
- “Regulating Multiple Polluters: Deterrence and Liability Allocation” (with Charles Hyde and Leo K. Simon), *International Economic Review* 41(2):495–521, May 2000.
- “Valuing Research Leads: Bioprospecting and the Conservation of Genetic Resources” (with Arthur A. Small). *Journal of Political Economy* 108(1):173–206, February 2000.
- “Food Import Demand in the Czech Republic” (with Karel Janda and Jill J. McCluskey). *Journal of Agricultural Economics* 51(1):22–44, January 2000.
- “The Political Economy of Public Research Investment and Commodity Policies in Agriculture: an Empirical Study” (with Anurag Banerjee, Harry de Gorter, and Jo Swinnen), *Agricultural Economics* 22:111–122, 2000.
- “Public/Private Research: Knowledge Assets and Future Scenarios,” *American Journal of Agricultural Economics* 81(5):1011–27, 1999.
- “Public/Private Alliances,” *AgBioForum* 2(1):5–10, Winter 1999.
- “Federal Grazing Reform and Avoidable Risk” (with Jill J. McCluskey), *Journal of Agricultural and Resource Economics* 24:140–54, July 1999.
- “Privatization, Market Liberalization and Learning in Transition Economies” (with Rachael E. Goodhue and Leo K. Simon), *American Journal of Agricultural Economics* 80(4):724–37, November 1998.
- “Information Asymmetries, Uncertainties, and Cleanup Delays at Superfund Sites” (with Leo K. Simon and Jinhua Zhao), *Journal of Environmental Economics and Management* 35(1):48–68, January 1998.
- “Central European Agricultural Policy and the EU Accession” (with Rachael E. Goodhue and Leo Simon), *Current Politics and Economics of Europe* 7(1):35–47, 1997.
- “The Estimation of Hicksian and Expenditure Elasticities of Conditional Demand for Food in Transition Economy 1993–1995” (with Karel Janda), *Central European Journal for Operations Research and Economics*, 5(2):155–171, 1997.
- “An Economic Evaluation of BWI Custom Kitchens and Indirect Purchaser Classes in Horizontal Price Fixing Cases” (with Greg Adams), *Competition* 6(1):1–41, Summer 1997.

- 
- “Flexible Public Policy: The Case of the United States Wheat Sector” (with Alan Love) *Journal of Policy Modeling* 19(2):207–236, April 1997.
- “Modelling Multilateral Negotiations: An Application to California Water Policy” (with Gregory D. Adams and Leo K. Simon), *Journal of Economic Behavior and Organization* 30(1):97–111, June 1996.
- “Computable Policy Model of Eastern European Agriculture and the Food Industry” (with Janda, Goodhue, Lyons, and Simon). Prague Economic Papers, *Quarterly Journal of Economic Theory and Policy*, University of Economics, Prague, V (March 96/1), pp. 70–9.
- “Flexible Technology and the Cost of Improving Groundwater Quality” (with David Sunding, David Zilberman, and Alan Marco), *Natural Resource Modeling* 9(2):177–92, Spring 1995.
- “Governance Structures and the Durability of Reforms: Evidence from Inflation Stabilizations” (with Richard Ball). *World Development*, 23(6):897–912, 1995.
- “Government Agricultural Policy, the United States” In: *The Encyclopedia of Agricultural Sciences* 2 (1994) pp. 465–476, Charles J. Arntzen (editor), San Diego, CA: Academic Press.
- “Intraorganizational Influence Relations and the Optimality of Collective Action” (with Pinhas Zusman), *Journal of Economic Behavior and Organization* 24(1):1–22, June 1994.
- “Natural Resource Damages: Knowledge of Valuation Techniques Useful, as Liability Exposure Grows” (with André Fargeix,). *Environmental Compliance & Litigation Strategy* 9 (8):1–5, January 1994.
- “Price Distorting Compensation Serving the Consumer and Taxpayer Interest” (with William E. Foster), *Public Choice* 77(2):275–91, October 1993.
- “The Governance Structure of Agricultural Science and Agricultural Economics: A Call to Arms” (with Richard E. Just) *American Journal of Agricultural Economics* 75:69–83 October 1993.
- “State-Market-Civil Institutions: The Case of Eastern Europe and the Soviet Republics” (with S. R. Johnson), *World Development* 21(4):675–89, April 1993.
- “Nutrient Demand and the Allocation of Time: Evidence from Guam” (with Glynis Gawn, Robert Innes, and David Zilberman). *Applied Economics* 25:811–30, 1993.
- “Environmental and Agricultural Policy Linkages and Reforms in the United States Under the GATT” (with Richard Just). *American Journal of Agricultural Economics* 74(3):766–74, August 1992.
- “Predatory Versus Productive Government: The Case of U.S. Agricultural Policy” *Journal of Economic Perspectives* 6(3):133–57, Summer 1992.
- “Public Policy and Constitutional Prescription” (with Pinhas Zusman). *American Journal of Agricultural Economics* 74(2):247–57, May 1992.

- 
- “Political Preference Functions and Public Policy Reform: Reply” (with William E. Foster), *American Journal of Agricultural Economics* 74(1):227–30, February 1992.
- “Productive and Predatory Public Policies: Research Expenditures and Producer Subsidies in Agriculture,” (with Harry de Gorter and David J. Nielson). *American Journal of Agricultural Economics* 74(1):27–37, February 1992.
- “Preconditions for the Emergence of East European Market Economies,” *Current Politics and Economics of Europe* 1(3/4):347–61, 1991.
- “Farmer Behavior Under Risk of Failure” (with William E. Foster), *American Journal of Agricultural Economics* 73(2):276–88, May 1991.
- “Food Security, Price Uncertainty, and Country Hedging: A Case Study of China” (with Jianmin Liu), *The Review of Futures Markets* 10(2):357–371, 1991.
- “The Political Economy of Commodity and Public Good Policies in European Agriculture: Implications for Policy Reform” (with Harry de Gorter), *European Review of Agricultural Economics* 18:481–504, 1991.
- “Implications of Structural Adjustment: Experience in Developing World for Eastern Europe” *American Journal of Agricultural Economics* 72(5):1252–6, December 1990.
- “Market Politics and Foreign Assistance” (with Scott Thomas), *Development Policy Review* 8:365–81, December 1990.
- “Linkages Among Commodity Futures Markets and Dynamic Welfare Analysis” (with Nicholas Walraven), *Review of Economics and Statistics* 72(4):631–9, November, 1990.
- “Political Preference Functions and Public Policy Reform” (with William E. Foster), *American Journal of Agricultural Economics* 72(3):642–52, August 1990. Reprinted in *Agro-Environmental Policy*, Sandra S. Batie and Rick Horan, eds., Ashgate Publishing Ltd., Aldershot, UK, forthcoming September 2004.
- “A New Paradigm for Policy Reform and Economic Development,” *American Journal of Agricultural Economics* 72(3):821–6, August 1990.
- “Looking Ahead: Agricultural Policy in the 1990” (with David Nielson), *U.C. Davis Law Review* 12(3):415–30, Spring 1990.
- “An Assessment of the Agricultural Economics Profession” (with Richard E. Just), *American Journal of Agricultural Economics* 1(5):1177–90, December 1989.
- “Incomplete Markets and Government Agricultural Policy” (with Robert D. Innes), *American Journal of Agricultural Economics* 71(4):915–31, November 1989.
- “Interest Rates and Commodity Prices” (with John Kitchen). *Journal of Agricultural Economics Research* 41(2):5–11, Spring 1989.



- “The Political Economy of Agricultural Policy Reform” (with Douglas A. Irwin), *European Review of Agricultural Economics* (1989), pp. 349–66.
- “Managing Farm Supply: Kick the Habit; But Make Other Reforms, Too” (with William E. Foster), *Choices*, 3rd Quarter (1987), pp. 18–21.
- “Modeling the Effects of Policy on Farmers in Developing Agriculture” (with Richard E. Just and David Zilberman), *International Journal of Development Planning Literature* 1(3):287–300, July–September 1986.
- “Macroeconomic Linkages, Taxes, and Subsidies in the U.S. Agricultural Sector” (with James A. Chalfant, H. Alan Love, and Kostas G. Stamoulis) *American Journal of Agricultural Economics* 68(2):399–412, May 1986.
- “Some Political Economy Aspects of Macroeconomic Linkages with Agriculture” (with Margaret S. Andrews), *American Journal of Agricultural Economics* 68(2):413–7, May 1986.
- “The Distributional Effects of Land Controls in Agriculture” (with David Zilberman and Richard E. Just), *Western Journal of Agricultural Economics* 9(2):215–32, December 1984.
- “Country Hedging for Real Income Stabilization: A Case Study of South Korea and Egypt” (with Kathryn M. Gordon), *Journal of Futures Markets* 4(4):449–464, Winter 1984.
- “Systems Science and Natural Resource Economics” (with Stanley R. Johnson and Cleve Willis), *International Journal of Systems Science* 14(8):829–858, 1983.
- “Efficient Asset Portfolios and a Theory of Normal Backwardation” (with Colin Carter and Andrew Schmitz), *Journal of Political Economy* 91(2):319–31, April 1983.
- “The Effect of Asymmetrically Held Information and Market Power in Agricultural Markets” (with Jeffrey M. Perloff), *American Journal of Agricultural Economics* 65(2):366–71, May 1983.
- “Futures Market Efficiency in the Soybean Complex” (with Colin Carter). *Review of Economics and Statistics* 65(3):469–78, August 1983.
- “Political Economic Markets: PERTs and PESTs in Food and Agriculture,” *American Journal of Agricultural Economics* 64(5):821–33, December 1982.
- “Optimal Choices Among Alternative Technologies with Stochastic Yields” (with Joseph Yassour and David Zilberman), *American Journal of Agricultural Economics* 63(4):718–23 November 1981.
- “Multiattribute Utility Analysis: The Case of Filipino Rice Policy” (with Joseph Yassour), *American Journal of Agricultural Economics* 63(3):484–94, August 1981.

“Commodity Price Forecasting with Large-Scale Econometric Models and the Futures Market” (with Richard E. Just), *American Journal of Agricultural Economics* 63(2):197–215, May 1981.

“Economics of Soil Conservation from the Farmer’s Perspective,” *American Journal of Agricultural Economics* 62(5):1093–4, December 1980.

“Hedging and Joint Production, Theory and Illustrations.” *Journal of Finance*, 35(2):498–501, May 1980.

“Natural Resources, Goods, Bads, and Alternative Institutional Frameworks” (with Harvey Lapan), *Resources and Energy* 2(4):293–324, 1979.

“Systems Methods in Natural Resource Economics” (with S.R. Johnson and C. Willis), *Cybernetics* 1979.

“Public Intervention and Producer Supply Response” (with D. Peter Stonehouse). *American Journal of Agricultural Economics* 60(5):885–90, December 1978

“Active Learning, Control Theory, and Agricultural Policy,” *American Journal of Agricultural Economics* 60(3):476–90, August 1978.

“Adaptive Control: Survey of Methods and Applications” (with Dov Pekelman). *Management Science* 9:89–120, 1978.

“Daily Fluctuations in Campground Use: An Economic Analysis” (with Ronald A. Oliveira), *American Journal of Agricultural Economics* 59(2):283–93, May 1977.

“The Economic Impact of EPA Sulfur Standards on the U.S. Coal Industry” (with R. A. Levins, M. D. Boehlje, and J. A. Otte), *SME Transactions*, 262:65–74, March 1977.

“The Stability of the Demand for Money in Canada” (with P. Laumas). *Journal of Monetary Economics* 2:367–80, Summer 1976.

“Investment Sequencing, Allocation, and Learning in the Design of Water Resource Systems: An Empirical Application” (with C. Willis), *Water Resources Research* 12:317–30, June 1976.

“An Economic Analysis of Wilderness Area Use” (with Ronald A. Oliveira), *Journal of the American Statistical Association* 71(354):276–285, June 1976.

“Econometric Policy Model Construction: The Post-Bayesian Approach” (with A. Faden), *Annals of Economic and Social Measurement* 5:349–62, Spring 1976.

“Stochastic Control Theory and Economic Policy: An Application” (with J. W. Freebairn), *Australian Economic Papers* 14(25):216–30, December 1975.

“Effects and Changes in the Level of U.S. Beef Imports” (with J. W. Freebairn), *American Journal of Agricultural Economics* 57(4):676–688, November 1975.



- 
- “Technical Progress and Environmental Tradeoffs in Natural Resource Industries,” *Journal of Economics and Business* 28:1–14, October 1975.
- “Temporal Price Behavior in Commodity Futures Markets (with T. F. Cargill), *Journal of Finance* 30(4):1043–53, September 1975.
- “The Limitations of Simulation in Model Evaluation and Decision Analysis” (with S. R. Johnson), *Simulation and Games* 6(2):115–50, June 1975.
- “Book Review of The Computation of General Equilibria by Herbert Scarf” (with Quirino Paris). *Journal of the American Statistical Association*, 70(350) (June 1975), pp. 485–86.
- “Stochastic Control of Environmental Externalities” (with R. Howitt), *Annals of Economic and Social Measurement* 4(2):271–92, Spring 1975.
- “Discrete Variations Across Subsets of Parameters in Simultaneous Equation Models” (with S. R. Johnson), *Metroeconomica* 26:226–244, January December 1974.
- “Technological Change, Production, and Investment in Natural Resource Industries,” *American Economic Review* 64(6):1049–59, December 1974.
- “An Adaptive Control Approach to Agricultural Policy”(with J. W. Freebairn), *Australian Journal of Agricultural Economics* 18(3):208–20, December 1974.
- “Estimation of Policy Preference Functions: An Application to U.S. Beef Import Policy” (with J. W. Freebairn), *Review of Economics and Statistics* 56(4):437–49, November 1974.
- “Alternative Econometric Forms,” *Journal of Economics* 2:27–37, October 1974.
- “Updating Parameter Estimates: A Least Squares Approach with an Illustrative Application to the Inventory of Beef Cows” (with J. W. Freebairn), *Review of Marketing and Agricultural Economics* 42(2):83–9, June 1974.
- “Approximate Adaptive Control Solutions to U.S. Beef Trade Policy” (with J. W. Freebairn), *Annals of Economic and Social Measurement*, 3(1):177–203, January 1974.
- “Sufficient Conditions for Aggregation in Linear Programming Models” (with Quirino Paris), *American Journal of Agricultural Economics*, 55(4):659–66, November 1973.
- “The Validity and Verification of Complex System Models: Discussion on Shapiro and Fromm,” (With Carl F. Christ) *American Journal of Agricultural Economics*, 55(2):271–279, May 1973.
- “Investment Sequencing Recognizing Externalities in Water Desalting” (with C. Willis), *Water Resource Bulletin*, 9(1):54–72, February 1973.
- “Learning External Benefits and Subsidies in Water Desalination” (with C. Willis and P. Frick), *Water Resources Research*, 8(6):1385–400, December 1972.

“Approximate Distribution of Parameters in Distributed Lag Models” (with Theodore P. Lianos), *Journal of the American Statistical Association*, 67(337):64–67, March 1972.

“Time and Frequency Domain Representations of Future Prices as a Stochastic Process” (with Thomas F. Cargill), *Journal of the American Statistical Association*, 67(337):23–30, March 1972.

“Effects of Misspecification of Linear Functions When Sample Values Are Zero or Negative—A Reply” (with S. R. Johnson), *American Journal of Agricultural Economics*, 53(4):673–4, November 1971.

“On the Measurement of Price Elasticity of Demand” (with S. H. Logan and R. A. Oliveira), *American Journal of Agricultural Economics*, 53(1):112–5, February 1971.

“Effects of Misspecifications of Log-Linear Functions When Sample Values Are Zero or Negative” (with S. R. Johnson), *American Journal of Agricultural Economics*, 53(1):120–4, February 1971.

“The Demand for Fertilizer, 1949–1969: An Analysis of Coefficients from Periodic Cross Sections” (with T. F. Moriak), *Agricultural Economics Research*, 22(2):45–56, April 1970.

“The Existence of Broiler Cycles: An Application of Spectral Analysis” (with Thomas F. Cargill), *American Journal of Agricultural Economics*, 52(1):109–21, February 1970.

### **Papers Submitted for Refereed Journal Publication**

“Nash Bargaining and Risk Aversion” (with Leo Simon). Submitted to *Econometrica*.

“The Determinants of Bargaining Power in Three-Player Negotiation Games” (with Leo Simon). Submitted to *Review of Economic Studies*.

“Local Negotiation with Heterogeneous Groundwater Users” (with Susan Stratton Sayre and Leo K. Simon). Submitted to *Ecological Economics*.

“Centralized Clearing for Over-the-Counter Derivatives” (with William Balson and Reid Stevens). Submitted to *Journal of Financial Economic Policy*.

“Centralized Clearing” (with William Balson and Reid Stevens). Submitted to *Review of Derivatives Research*.

“‘Buyer Power’ and Economic Policy: Is Monopsony Really Symmetric with Monopoly?” (with Richard Just). Submitted to *Antitrust Bulletin*.

“Biotechnology, Intellectual Property and Value Differentiation in Agriculture” (with Rachael Goodhue, Suzanne Scotchmer and Leo K. Simon). Submitted to *Review of Industrial Organization*.

“SSNIP Test: Partial vs General Equilibrium” (with Richard E. Just). To be submitted to *Rand Journal of Economics*.

“Predatory Behavior in Vertical Market Structures: A General Equilibrium Approach” (with Richard E. Just). To be submitted to *Journal of Law and Economics*.

“Rational Exaggeration in Information Aggregation Games” (with Leo K. Simon and Jinhua Zhao). Submitted to *Journal of Economic Theory*.

“Processors Placements and Producer Incentives: Analyzing Broiler Chicken Production Contracts” (with Rachael E. Goodhue and Leo K. Simon). To be submitted to *Journal of Economic Management Strategy*.

“Price and Location” (with Leo Simon). To be submitted to *Journal of Economic Theory*.

“Pollution or Politics: The Case of Environmental Programs in the EU” (with K. Baylis, S. Peplow and L. Simon), to be submitted to *American Economic Journal: Economic Policy*.

“A Dynamic Model of the Food Processing Sector in the New Market Economies of Central Europe” (with Rachael E. Goodhue, Robert Lyons, and Leo K. Simon), to be submitted to *Journal of Policy Modeling*.

“Political Economy of Public Policies: Insights from Distortions to Market Incentives” (with Kym Anderson and Jo Swinnen), submitted to the *Journal of Economic Literature*.

## **Books and Monographs**

*Property Rights and Collective Action in Natural Resources with Application to Mexico* (with Antinori). In preparation.

*Public/Private Partnerships: Collective Choice Under Alternative Control Premiums*. In preparation.

*Political Power and Economic Policy: Theory, Analysis, and Empirical Applications* (with Jo Swinnen and Pinhas Zusman). Cambridge University Press, in progress.

*Structure and Power in Multilateral Negotiations: An Application to French Water Policy* (with Leo K. Simon, Rachael E. Goodhue, Sophie Thoyer, Sylvie Morardet, and Patrick Rio), Giannini Foundation Research Monograph 47, June 2007.

*Social Costs of an MTBE Ban in California* (with Gregory D. Adams, W. David Montgomery, and Anne E. Smith), University of California, Giannini Foundation Report, December 2004.

*Handbook of Agricultural Economics*, Vol 2A, Bruce L. Gardner and Gordon C. Rausser (editors), (Amsterdam: Elsevier Science, North-Holland, 2002, 477 pp.).

*Handbook of Agricultural Economics*, Vol 2B, Bruce L. Gardner and Gordon C. Rausser (editors), (Amsterdam: Elsevier Science, North-Holland, 2002, 562 pp.).

*Handbook of Agricultural Economics*, Vol 1A, Bruce L. Gardner and Gordon C. Rausser (editors), (Amsterdam: Elsevier Science, North-Holland, 2001, 741 pp.).

*Handbook of Agricultural Economics*, Vol 1B, Bruce L. Gardner and Gordon C. Rausser (editors), (Amsterdam: Elsevier Science, North-Holland, 2001, 464 pp.).

*Agricultural Globalization, Trade and the Environment* (with C. Moss, A. Schmitz, T. Taylor, D. Zilberman) (Boston: Kluwer Academic Publisher, 2001, 542 pp.).

*GATT Negotiations and the Political Economy of Policy Reform* (with associates), (Berlin, Heidelberg, New York: Springer-Verlag, 1995).

*Economic Growth, Political and Civil Liberties* (with John McMillan and Stanley R. Johnson), Occasional Paper 53, Institute for Contemporary Studies, San Francisco, 1994.

*The Emergence of Market Economies in Eastern Europe* (with C. Clague, eds.), (Cambridge, MA: Blackwell Publishers, 1992).

*Development and the National Interest* (one of many collaborators), Agency for International Development Monograph, March 1989.

*Toward Agricultural Policy Reform*. Economic Report of the President. Chapter 5, U.S. Council of Economic Advisors, 1987, pp. 147–78.

*Macroeconomic Environment for U.S. Agricultural Policy*. American Enterprise Institute for Public Policy Research, Occasional Paper on U.S. Agricultural Policy. Washington, DC, 1985.

*Alternative Agricultural and Food Policies and the 1985 Farm Bill* (with Kenneth R. Farrell, eds.). Giannini Foundation of Agricultural Economics, University of California, Berkeley, and Resources for the Future, Washington, DC, San Leandro, CA: Blaco Publishers, 1984.

*New Directions in Econometric Modeling and Forecasting in U.S. Agriculture* (editor). (New York: Elsevier North-Holland, Inc., 1982).

*Dynamics of Agricultural Systems: Economic Prediction and Control* (with E. Hochman). (Amsterdam: North-Holland Publishing Co., 1979).

*Urban Malnutrition: Problem Assessment and Intervention Guidelines* (with J. Austin, Johanna Dwyer, et al), World Bank Monograph, 1977.

*A Survey of Agricultural Economics Literature: Quantitative Methods* (with G. G. Judge, R. Day, S. R. Johnson, and Lee Martin), (Minneapolis: University of Minnesota Press, 1977). Reprinted in paperback (2009).

**In Books and Proceeding Issues**

- “Rational Industrial Policy: Structuring R&D Investments in Renewable Energy”, forthcoming in *Bioeconomy Governance: Policy, Environmental and Health Regulation, and Public Investments in Research*, ICABR, Italy.
- “PPPs: The Determination of Control Premiums”, forthcoming in *The Routledge Companion to Public-Private Partnerships*, de Vreis and Yehoue, eds., Routledge.
- “Market Structure in the Plant Biotechnology Industry: The Role of Intellectual Property” (with Alan Marco), forthcoming in *Genetically Modified Food and Global Welfare*, Carter, Moschini and Sheldon, eds., Emerald Publishing Group.
- “The Giannini Foundation and the Welfare of California Agriculturalists in a Changing State, Nation, and World.” In *A.P. Giannini and the Giannini Foundation of Agricultural Economics*, W. Johnson and A. McCalla, eds., Giannini Foundation, 2009, pp. 147-164.
- “Special Interests Versus the Public Interest: The Determination of Policy Instruments” (with Gerard Roland), forthcoming in Anderson, K. (ed.), *Political Economy of Distortions to Agricultural Incentives*, Washington DC: World Bank.
- “University-Private Partnerships in Horticultural R&D”, (with Reid Stevens) in *Transgenic Horticultural Crops: Challenges and Opportunities*, forthcoming.
- “Managing R&D Risk in Renewable Energy” (with Maya Papineau), *Transition to a Bioeconomy: Risk, Infrastructure, and Industry Evolution*, B. English, ed. Farm Foundation, 2009, pp. 29-41.
- “Negotiating over the Allocation of Water Resources: The Strategic Importance of Bargaining Structure” (with Rachael Goodhue, Leo Simon and Sophie Thoyer), *Game Theory and Policy Making in Natural Resources and the Environment*, Ariel Dinar, Jose Albiac and Joaquin Sanchez-Soriano, editors. Routledge Press, 2008, pp 132-154.
- “Information Asymmetries, Uncertainties, and Cleanup Delays at Superfund Sites” (with Leo Simon and Jinhua Zhao), *The Economics of Hazardous Waste and Contaminated Land*, Hilary Sigman, ed. Edward Elgar Publishing, 2008.
- “Estimating Toxic Tort and Damages” (with Mark Berman) in Earl L. Hagström, editor, *Perchlorate: a Scientific, Legal, and Economic Assessment*, Lawyers & Judges Pub. Co., Tucson, AZ, 2006, pp.375-407.
- Exploring Frontiers in Applied Economics: Essays in Honor of Stanley R. Johnson*, a tribute volume to Stan Johnson; Jean-Paul Chavas and Matt Holt, editors, Berkeley Electronic Press, Berkeley, CA, 2006.
- “Agri-Environmental Programs in the United States and European Union” (with Leo Simon and Kathy Baylis) in Anania, M. E. Bohman, C. A. Carter, and A. F. McCalla, editors, *Agricultural Policy Reform and the WTO: Where Are We Heading?*, Edward Elgar, Cheltenham, UK and Northampton, MA, USA, 2004.

“Political Economic Markets: PESTs and PERTs in Food and Agriculture.” In *The WTO and Agriculture*, Kym Anderson and Tim Josling, editors. Edward Elgar Publishing Ltd, Cheltenham, UK & Northampton, MA, USA, 2005.

“Valuing Research Leads: Bioprospecting and the Conservation of Genetic Resources” (with Arthur A. Small). In *The Economics of Biodiversity Conservation*, Stephen Polasky, editor. International Library of Environmental Economics and Policy; Ashgate Publishing Ltd, Aldershot, UK, 2002.

“Mergers and Intellectual Property in Agricultural Biotechnology” (with Alan Marco). In *Economic and Social Issues in Agricultural Biotechnology*, R.E. Evenson, V. Santaniello and D. Zilberman, editors. (New York: CABI Publishing, 2002, pp. 119–35).

“Conceptual Foundations of Expectations and Implications for Estimation of Risk Behavior” (with R.E. Just). In *A Comprehensive Assessment of the Role of Risk in U.S. Agriculture*, Chapter 4, R.E. Just and R.D. Pope, editors. (Boston: Kluwer Academic Publishers, 2001, pp. 53–80).

“Rent Seeking and International Trade in Agriculture” (with Harry de Gorter and Andrew Schmitz). In *Agricultural Globalization, Trade and the Environment*. Chapter 9, C. Moss, G. Rausser, A Schmitz, T. Taylor, D. Zilberman editors. (Boston: Kluwer Academic Publishers, 2001, pp. 179–211).

“Community Integration in Mexico’s Forest Industry: Survey Data from Oaxaca” (with C. Antinori). In: *World Forests, Markets and Policies*. M. Palo, J Uusivuori, and G. Mery, editors. (Boston: Kluwer Academic Publishers, 2001, pp. 293–4).

“Public Research/Private Alignments.” In: *Knowledge Generation and Technical Change: Institutional Innovation in Agriculture*. Chapter 3. (Boston: Kluwer Academic Publishers, 2001, pp. 55–62).

“Production and Marketing” (with R. Goodhue). In: *Handbook of Agricultural Economics*, Volume 1, Chapter 21, Bruce L. Gardner and Gordon C. Rausser (editors). (Amsterdam: Elsevier Science, North-Holland, 2001, pp. 1084–1209).

“Public Policy: Its Many Analytical Dimensions” (with R. Goodhue). In: *Handbook of Agricultural Resource Economics*, Volume 2, Chapter 39, Bruce L. Gardner and Gordon C. Rausser (editors). (Amsterdam: Elsevier Science, North Holland, 2002, pp. 2058–2102).

“Collective Choice in Water Resource Systems.” In: *The Political Economy of Water Pricing Implementation*. The World Bank, Washington, DC. Chapter 3, Ariel Dinar, editor. (New York: Oxford University Press, 2000, pp. 49–78).

“Alignment of Public/Private Institutions in the Biotechnology Revolution” in *Agricultural Outlook Forum 1999 Proceedings*. (Washington, DC: USDA, June 1999).

“Value Differentiation in Agriculture: Driving Forces and Complementarities” (with R. Goodhue). In *Vertical Relationships and Coordination in the Food System*. Giovanni Galizzi and Luciano Venturini, editors. (Heidelberg: Physica-Verlag Publishers, 1999).



“An Empirical Study of the Determinants of Public Research Investment and Commodity Policies in Agriculture” (with Johan F.M. Swinnen, Harry de Gorter, and Anurag N. Banerjee). In *Food Security, Diversification, and Resource Management: Refocusing the Role of Agriculture.* XXIII International Conference of Agricultural Economists. (Sacramento, CA: August 1997).

“The Choice of Commodity Policies and Research Investment in Agriculture” (with Johann F.M. Swinnen and Harry de Gorter). Contributed paper in the Proceedings of the conference, *Global Agricultural Science Policy for the Twenty-First Century*, Melbourne, Australia, August 16–18, 1996.

“The Economic Value of Patents, Licenses, and Plant Variety Protection” (with Arthur A. Small). In proceedings volume, *Building Partnerships for Commercializing University Research*, Tahoe City, California, May, 1996.

“GATT Agricultural Policy Reform: A United States Perspective.” In *Agricultural Markets: Mechanisms, Failures and Regulations*, Martimort, D. (editor). (Amsterdam: Elsevier Science, 1996, pp. 331–71).

“Political Economic Processes and Collective Decision Making” (with Leo K. Simon and Klaas T. van ’t Veld). In *Agricultural Competitiveness: Market Forces and Policy*, Peters, George H. and Hedley, Douglas D. (eds.) Aldershot, Hants, England and Brookfield, Vt., USA: Dartmouth, 1995, pp. 261–273.

“State-Market-Civil Institutions: The Case of Eastern Europe and the Soviet Republics” (with Stanley R. Johnson). In *State, Market and Civil Organizations*, Alain de Janvry, Samir Radwan, Elisabeth Sadoulet and Erik Thorbecke (editors). (London: Macmillan Press, 1995, pp. 458–86).

“The Uruguay Round and the GATT Negotiations.” In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 1, Gordon C. Rausser (editor). (Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 1–34).

“Compensation and Political Feasibility: Facilitating Welfare Improving Policies” (with Richard E. Just and David Zilberman). In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 3, Gordon C. Rausser (editor). Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 65–84.

“The Political Economy of Redistributive Policies and the Provision of Public Goods in Agriculture” (with Harry de Gorter and David J. Nielson). In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 4, Gordon C. Rausser (editor). Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 85–106).

“Coalition Breaking and Policy Reform” (with William E. Foster). In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 5, Gordon C. Rausser (editor). Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 107–24).

“Public Goods and Welfare Transfer Tradeoffs” (with William E. Foster). In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 6, Gordon C. Rausser (editor). (Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 125–43).

“Mobility, Diversification, and Sustainability of Trade Reform” (with William E. Foster and Richard Gray). In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 7, Gordon C. Rausser (editor). (Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 145–64).

“Modeling Policy Reform in the U.S. Wheat and Feed Grain Sectors” (with Richard E. Just and David Zilberman). In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 8, Gordon C. Rausser (editor). (Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 175–254).

“The Determination of Technology and Commodity Policy in the U.S. Dairy Industry” (with Harry de Gorter and David Nielson). In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 9, Gordon C. Rausser (editor). (Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 253–74).

“Modeling Phased Reductions of Distortionary Policies in the U.S. Wheat Market under Alternative Macroeconomic Environments” (with Steve Labson). In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 10, Gordon C. Rausser (editor). (Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 275–314).

“Alternative Subsidy Reduction Paths: The Role of Fiscal and Monetary Policy Linkages” (with Pier-Giorgio Ardeni). In *GATT Negotiations and the Political Economy of Policy Reform*, Chapter 11, Gordon C. Rausser (editor). (Berlin, Heidelberg, New York: Springer-Verlag, 1995, pp. 315–45).

“Disruption and Continuity in Bulgarian Agrarian Reform” (with R. F. Lyons and L.K. Simon). In *Privatization of Agriculture in New Market Economies: Lessons from Bulgaria*, Chapter 5, A. Schmitz, K. Molton, A. Buckwell, and S. Davidola (editors). (Boston: Kluwer Academic Publishers, 1994).

“Productive and Predatory Public Policies: Research Expenditures and Producer Subsidies in Agriculture.” Reprinted in *Agricultural Economics*, G. H. Peters (editor). (Cheltenham, England: Edward Elgar Publishing Ltd., 1994).

“International Impacts of Reduced Intervention in Agricultural Markets.” In *International Agricultural Trade and Market Development Policy in the 1990s*, John W. Helmuth and Don F. Hadwiger (editors). (Westport, CT: Greenwood Press, 1993, pp. 81–114).

“Managing Groundwater Quality under Uncertainty” (with David Sunding, David Zilberman, and Alan Marco). In *Quantifying Long-Run Risks in Agriculture*, Michele Marra (editor), proceedings of a seminar sponsored by Southern Regional Project S-232, Jekyll Island, GA, March, 1993. Department of Resource Economics and Policy, University of Maine, Orono, June 1993, pp. 1–33.

“An Emerging Framework for Economic Development: A LDC Perspective.” In *Industrial Policy for Agriculture in the Global Economy*, S.R. Johnson and S. A. Martin (editors). (Ames, IA: Iowa State University Press, 1993, Chapter 11, pp. 229–45).



“The Structure of Research and Transfer Policies in International Agriculture (with David R. Lee).” In *Issues in Agricultural Development, Sustainability and Cooperation*, Margot Bellamy and Bruce Greenshields (editors). International Association of Agricultural Economists Occasional Paper 6, 1992, pp. 34–42.

“Environmental and Agricultural Policy Linkages and Reforms in the United States under the GATT” (with Richard Just and David Zilberman). In *Improving Agricultural Trade Performance under the GATT*, Chapter 18, T. Becker, R. Gray, and A. Schmitz (editors). (Wissenschaftsverlag Vauk Kiel KG, 1992).

“The Political Economy of Transition in Eastern Europe: Packaging Enterprises for Privatization” (with Leo K. Simon). In *The Emergence of Market Economies in Eastern Europe*, Chapter 14, Christopher Clague and Gordon Rausser (editors). (Cambridge, MA: Blackwell Publishers, 1992, pp. 245–70).

“Lessons for Emerging Market Economies in Eastern Europe.” In *The Emergence of Market Economies in Eastern Europe*, Chapter 19, Christopher Clague and Gordon Rausser (editors). Cambridge, MA: Blackwell Publishers, 1992, pp. 311–32).

“An Assessment of the Agricultural Economics Profession.” In *Social Science Agricultural Agendas and Strategies*, Chapter 7, J. Loehr (editor). (East Lansing, MI: Michigan State University Press, 1991).

“The Political Economy of Agriculture in the United States.” In *The Political Economy of North America Agricultural Policies and Trade*, Chapter 3, Hans Michelmann, Jack Stabler, and Gary Storey (editors). (Boulder, CO: Westview Press, 1991, pp 57–91).

“Public Research in Agriculture: An Alternative Institutional Framework” (with David Zilberman). In *Economic Models, Estimation, and Socioeconomic Systems: Essays in Honor of Karl Fox*, Tej K. Kaul and Jati K. Sengupta (editors). (Amsterdam: Elsevier Science Publishers, 1991, pp. 33–53).

“Organizational Failure and the Political Economy of Water Resources Management” (with Pinhas Zusman). In *The Economics and Management of Water and Drainage in Agriculture*, Chapter 37, Ariel Dinar and David Zilberman (editors). (Boston: Kluwer Academic Publishers, 1991, pp. 735–58).

“The Evolution and Coordination of U.S. Commodity and Resource Policies” (with William E. Foster). In *Commodity and Resource Policies in Agricultural Systems*, Richard E. Just and Nancy Bockstael (editors). (Berlin, Heidelberg, New York: Springer-Verlag, 1991, pp. 17–45).

“Dynamic Welfare Analysis and Commodity Futures Markets Overshooting” (with Nicholas Walraven). In *International Commodity Market Modelling: Advances in Methodology and Applications*, Chapter 11, O. Guvenen, W.C. Labys, and J.-B. Lesourd (editors). (London: Chapman and Hall Book Publishing Company, 1991, pp. 211–32).

“Empirical Pricing Measures for Futures Markets” (with Nicholas Walraven). In *Commodity Futures and Financial Markets*, Chapter 7, Louis Philips (editor). (Boston: Kluwer Academic Publishers, 1990, pp. 179–203).

“The Politics of Economic Policy Reform” (with E. Scott Thomas). In *Development Issues, 1990*, Chapter 2, Ronald Roskens, Chairman of Development Coordination Committee (editor). (Washington, DC: U.S. Government Printing Office, 1990, pp. 4–19).

“World Commodity Prices: The Role of External Debt and Industrial Country Policies” (with M.G. Rose and D.A. Irwin). In *Agricultural Trade Liberalization*, Chapter 15, Ian Goldin and Odin Knudsen (editors). (Paris: Organization for Economic Cooperation and Development; and Washington: The World Bank, 1990, pp. 415–45).

“Endogenizing Policy in Models of Agricultural Markets” (with Harry de Gorter). In *Agriculture and Governments in an Interdependent World*, Allen Maunder and Alberto Valdés (editors). Proceedings of the Twentieth International Conference of Agricultural Economists, Buenos Aires, August, 1988. (Dartmouth: International Association of Agricultural Economists, University of Oxford, 1989, pp. 259–74).

“The Macroeconomic Dimension of Agricultural and Food Policy Reform.” In *World Food System: Hunger in the Midst of Plenty, Volume II*, John W. Helmuth and Stanley R. Johnson (editors). (Ames, IA: Iowa State University Press, 1989, pp. 90–109).

“The Impacts of Economic Reform for Agricultural and Food Policy” (with William E. Foster). In *World Food System: Hunger in the Midst of Plenty, Volume I*, John W. Helmuth and Stanley R. Johnson (editors). (Ames, IA: Iowa State University Press, 1989, pp. 95–99).

“Alternative Strategies for Trade Policy Reform” (with Brian D. Wright). In *Policy Coordination in World Agriculture*, Harald von Witzke, C. Ford Runge, and Brian Job (editors). (Minneapolis: University of Minnesota Press, 1989, pp. 117–159).

“A Coherent Policy for U.S. Agriculture” (with William E. Foster). In *Food, Policy, and Politics: A Perspective on Agriculture and Development*, George Horwich and Gerald J. Lynch (editors). (Boulder, CO: Westview Press, 1989, pp. 191–237).

“Developments in Economics of Importance to Agricultural Economics: A Discussion.” In *Agriculture and Rural Areas Approaching the 21st Century*, R. J. Hildreth et al (editors). (Ames, IA: Iowa State University Press, 1988, pp. 257–264).

“The Macroeconomics of Agriculture in Rural America.” In *Agriculture and Rural Areas Approaching the 21st Century*, R. J. Hildreth et al (editors). (Ames, IA: Iowa State University Press, 1988, pp. 384–395).

“Stability Issues and Policy Analysis.” In *Agricultural Stability and Farm Programs*, Dan Sumner (editor). (Boulder, CO: Westview Press, February, 1988, pp. 143–170).

“Overshooting of Agricultural Prices” (with Kostas G. Stamoulis). In *Macroeconomics, Agriculture, and Exchange Rates*, P. L. Paarlberg and Robert G. Chambers (editors). International Agricultural Trade Research Consortium. (Boulder, CO: Westview Press, 1988, pp. 163–189).

“The Food Marketing System: The Relevance of Economic Efficiency Measures” (with Jeffrey M. Perloff and Pinhas Zusman). In *Economic Efficiency in Agricultural and Food Marketing*, Richard L. Kilmer and Walter J. Armbruster (editors). (Ames, IA: Iowa State University Press, 1987, Chapter 1, pp. 3–31).

“Modeling the Effects of Policy on Farmers in Developing Agriculture” (with Richard E. Just and David Zilberman). Chapter published in *Theoretical Foundations of Development Planning*. S.B. Dahiya (ed); foreword by Professor Jan Tinbergen, Nobel Laureate. (Delhi, India: Vedams Books International, Concept Publishing Company, 1992. [Originally appeared in International Journal of Development Planning Literature 1(3), (July September, 1986), pp. 287–300.]

“Modeling Alternative Trade and Macroeconomic Scenarios: Implications for U.S. Agriculture” (with Kostas G. Stamoulis, H. Alan Love, and James A. Chalfant). In *Impacts of Farm Policy and Technological Change on U.S. and California Agriculture*. Harold O. Carter (editor). (Davis, CA: University of California, Agricultural Issues Center, 1986, pp. 91–136).

“Instability in Agricultural Markets: The U.S. Experience” (with James A. Chalfant and Kostas G. Stamoulis). In *Agriculture in a Turbulent World*, A. Maunder and U. Renborg (editors). (Oxford: Oxford University Press, 1985, Chapter 6, pp. 595–604).

“A Synthesis of Major Studies and Options for 1984” (with William E. Foster). In *The Dilemmas of Choice*, Chapter 7, Kent A. Price (editor). (Washington, DC: The National Center for Food and Agricultural Policy, Resources for the Future, 1985, pp. 201–46).

“Macroeconomics and U.S. Agricultural Policy.” In *U.S. Agricultural Policy: 1985 Farm Legislation*, Bruce L. Gardner (editor). (Washington, DC: American Enterprise Institute for Public Policy Research, 1985, pp. 207–52).

“Review and Assessment of Alternative Agricultural Policy Proposals” (with Linda S. Calvin and William E. Foster). In *Alternative Agricultural and Food Policies and the 1985 Farm Bill*, Chapter 7, Gordon C. Rausser and Kenneth R. Farrell (editors). Giannini Foundation of Agricultural Economics, University of California, Berkeley, and Resources for the Future, Washington, DC, San Leandro, CA: Blaco Publishers, 1984, pp. 143–82).

“Uncertain Economic Environments and Conditional Policies” (with Richard E. Just). In *Alternative Agricultural and Food Policies and the 1985 Farm Bill*, Chapter 5, Gordon C. Rausser and Kenneth R. Farrell (editors). Giannini Foundation of Agricultural Economics, University of California, Berkeley, and Resources for the Future, (Washington, DC, San Leandro, CA: Blaco Publishers, 1984, pp. 101–32).

“Summary and Conclusions” (with Kenneth R. Farrell). In *Alternative Agricultural and Food Policies and the 1985 Farm Bill*, Chapter 1, Gordon C. Rausser and Kenneth R. Farrell (editors). Giannini Foundation of Agricultural Economics, University of California, Berkeley, and Resources for the Future, Washington, DC, San Leandro, CA: Blaco Publishers, 1984, pp. 1–8.

“Monetary Policy and U.S. Agriculture” (with John W. Freebairn and Harry de Gorter). In *International Agricultural Trade: Advanced Readings in Price Formation, Market Structure, and Price Instability*, Andrew Schmitz, and Alexander H. Sarris (editors). (Boulder, CO: Westview Press, 1984, pp. 99–123).

“Agricultural Policy: A Synthesis of Major Studies and Options for 1985” (with William E. Foster). National Conference on Food, Agriculture, and Resources, Resources for the Future. (Washington, DC, 1984, p. 120).

“A Proper Perspective for Considering Adaptive Economics” (with David Zilberman). In *Modeling Farm Decisions for Policy Analysis*, Kenneth H. Baum and Lyle P. Schertz (editors). (Boulder, CO: Westview Press, 1983, pp. 56–60).

“Implications of United States Experience for Water Resource Planning in Egypt” (with Margriet F. Caswell). In *The Economic Challenges of Peace: Agriculture and Economic Transition in Egypt*. Proceedings of a Conference, Alexandria, Egypt, 1980, S. R. Johnson, John R. Moore, and Martin Wannan (editors). (Columbia, MO: University of Missouri, Department of Agricultural Economics, 1983, pp. 48–64).

“Expectation and Intertemporal Pricing in Commodity Futures and Spot Markets” (with Richard E. Just). In *Applied Commodity Price Analysis, Forecasting, and Market Risk Management: Proceedings of the NCR-134 Conference*, Des Moines, Iowa, 1983. (Ames, IA: Iowa State University, Department of Agricultural Economics, 1983, pp. 252–79).

“Modeling Equity and Efficiency in Agricultural Production Systems” (with Richard E. Just and David Zilberman). In *Growth and Equity in Agricultural Development*; Proceedings, 18th International Conference of Agricultural Economics, Jakarta, Indonesia, 1982, A. Maunder and K. Ohkawa (editors). Aldershot: Gower, 1983, and (Oxford: Oxford University Press, 1983, pp. 120–35).

“Lead-Lag Price Relationships Between Thinly and Heavily Traded Commodity Futures Markets” (with Colin A. Carter). In *Applied Commodity Price Analysis, Forecasting, and Market Risk Management: Proceedings of the NCR134 Conference*, Des Moines, Iowa, 1983. (Ames, IA: Iowa State University, Department of Agricultural Economics, 1983, pp. 241–51).

“Commodity Price Forecasting with Large-Scale Econometric Models and the Futures Market.” Reprinted in *Readings and Futures Markets, IV: Selected Writings on Futures Markets: Research Directions in Commodity Markets, 1970–1982*, Chicago Board of Trade, 1983.

“The Distributional Impacts of Agricultural Programs” (with David Zilberman and Richard E. Just). In *Proceedings from Perspectives on Food and Agricultural Policy Research Workshop*. (Oak Brook, IL: The Farm Foundation, 1982, pp. 33–60).

“Principles of Policy Modeling in Agriculture” (with Richard E. Just). In *Modeling Agriculture for Policy Analysis in the 1980s*. (Kansas City: Federal Reserve Bank of Kansas City, September, 1981, pp. 139–74). Also in *New Directions in Econometric Modeling and Forecasting in U.S. Agriculture*. (New York: Elsevier North-Holland, Inc., 1982, pp. 763–800).

“Institutionalizing a Large Scale Econometric Model: The Case of Agricultural Canada” (with Stanley R. Johnson and Bruce Huff). In *New Directions in Econometric Modeling and Forecasting in U.S. Agriculture*, Chapter 23, Gordon C. Rausser (editor). (New York: Elsevier North-Holland, Inc., 1982, pp. 801–30).

“Composite Forecasting in Commodity Systems” (with Stanley R. Johnson). In *New Directions in Econometric Modeling and Forecasting in U.S. Agriculture*, Chapter 21, Gordon C. Rausser (editor). (New York: Elsevier North-Holland, Inc., 1982, pp. 719–62).

“Structural Change, Updating, and Forecasting” (with Yair Mundlak and Stanley R. Johnson). In *New Directions in Econometric Modeling and Forecasting in U.S. Agriculture*, Chapter 20, Gordon C. Rausser (editor). (New York: Elsevier North-Holland, Inc., 1982, pp. 659–718).

“Developments in Theory and Empirical Applications of Endogenous Governmental Behavior” (with Erik Lichtenberg and Ralph Lattimore). In *New Directions in Econometric Modeling and Forecasting in U.S. Agriculture*, Chapter 18, Gordon C. Rausser (editor). (New York: Elsevier North-Holland, Inc., 1982, pp. 547–614).

“Food and Agriculture Sector Linkages to the International and Domestic Macroeconomies” (with John W. Freebairn and Harry de Gorter). In *New Directions in Econometric Modeling and Forecasting in U.S. Agriculture*, Chapter 17, Gordon C. Rausser (editor). (New York: Elsevier North-Holland, Inc., 1982, pp. 503–46).

“Price Supports and Demand in Commodity Market Modeling” (with Chris Riboud). In *New Directions in Econometric Modeling and Forecasting in U.S. Agriculture*, Chapter 11, Gordon C. Rausser (editor). (New York: Elsevier North-Holland, Inc., 1982, pp. 319–42).

“Consumer Demand, Grades, Brands, and Margin Relationships” (with Peter Berck). In *New Directions in Econometric Modeling and Forecasting in U.S. Agriculture*, Chapter 4, Gordon C. Rausser (editor). (New York: Elsevier North-Holland, Inc., 1982, pp. 99–130).

“New Conceptual Developments and Measurements for Modeling the U.S. Agricultural Sector.” In *New Directions in Econometric Modeling and Forecasting in U.S. Agriculture*, Chapter 1, Gordon C. Rausser (editor). (New York: Elsevier North-Holland, Inc., 1982, pp. 1–14).

“Simple Quantitative Models for Integrative Planning Frameworks.” In *Planning and Decision in Agribusiness: Principles and Experiences*, C.H. Hanf and G.W. Schiefer (editors). (New York: Elsevier Scientific Publishing Company, 1982, pp. 335–69).

“Food Grain Policy in Bangladesh.” In *Planning and Decision in Agribusiness: Principles and Experiences*, C.H. Hanf and G.W. Schiefer (editors). (New York: Elsevier Scientific Publishing Company, 1982, pp. 241–62).

“Principal Issues in the Evaluation of Public Research in Agriculture” (with Alain de Janvry, Andrew Schmitz, and David Zilberman). In *Methodology for Evaluation of Agriculture Research*, Walter L. Fishel, G.W. Norton, A. Paulsen, and W. Burt Sunquist (editors). (Minneapolis: University of Minnesota, Agricultural Experiment Station, 1981, Miscellaneous Publication No. 8).

“Policy: Alternatives and Consequences of Conservation Technology on Agricultural Land.” In *Soil and Water Resources: Research Priorities for the Nation*, W.E. Larsen, L.M. Walsh, B.A. Stewart, and Don H. Boelter (editors). (Madison, WI: Soil Science Society of America, 1981, pp. 83–102).



“A Putty-Clay Approach to the Distributional Effects of New Technology Under Risk” (with Richard E. Just and David Zilberman). In *Operations Research in Agriculture and Water Resources*, Chapter 6, Dan Yaron and Charles Tapiero (editors). (Amsterdam: North-Holland Publishing Co., 1980, pp. 97–121).

“Prospects and Limitations of Operations Research Applications in Agriculture and Agricultural Policy” (with Richard E. Just and David Zilberman). In *Operations Research in Agriculture and Water Resources*, Chapter 2, Dan Yaron and Charles Tapiero (editors). (Amsterdam: North-Holland Publishing Co., 1980, pp. 17–40).

“The Israeli Poultry Marketing Board: Price Production and Inventory Controls” (with Eithan Hochman and Eliahu Comay). In *Applied Stochastic Control in Econometrics and Management Science*, Chapter 1, A. Bensoussan, P. Kliendorfer, and C. S. Tapiero (editors). (Amsterdam: North-Holland Publishing Co., 1980, pp. 1–38).

“Futures Versus Commercial Econometric Models” (with Richard E. Just). In *Futures Trading Seminar*, Anne Peck (editor). (Chicago: Board of Trade of the City of Chicago, 1980, p. 6).

“Models of the U.S. Corn System.” In *Agribusiness Management for Developing Countries—Southeast Asia Corn Systems*, R. A. Goldberg et al (editors). (Boston: Ballinger Publishing Co., 1979, pp. 576–626).

“A Survey of Systems Analysis and Simulation in Agricultural Economics” (with S.R. Johnson). In *1940s to 1970s*, Chapter 3, G.G. Judge et al (editors). (Minneapolis: University of Minnesota Press, 1977, pp. 156–301).

“Firm Growth Policies Under Different Pollution Abatement, Production, and Financial Structures” (with E. Hochman). In *Economic Growth of the Agricultural Firm*, Chapter 12, C. Baker and R. Barry (editors). (Pullman, WA: Washington State University Press, WRCC-16 Research Committee, 1977).

“Environmental Impacts on Electricity Systems Growth” (with A.S. Cohen and G. Fishelson). In *Environmental Pollutants and the Urban Economy*, G.S. Tolley and A.S. Cohen (editors). (Chicago: University of Chicago, Center for Urban Studies, 1976).

“Environmental Policies for Power Plants” (with G. Fishelson and A.S. Cohen). In *Environmental Pollutants and the Urban Economy*, G.S. Tolley and A.S. Cohen (editors). (Chicago: University of Chicago, Center for Urban Studies, 1976).

“Economic Forecasting: The Case of Australian Agriculture” (with J. W. Freebairn). *American Statistical Association Proceedings*, Business and Economic Section (September, 1976), pp. 5425–48.

“An Estimating Method for Models with Stochastic, Time Varying Parameters” (with S. R. Johnson). *American Statistical Association Proceedings*, Business and Economic Statistics Section (September 1975), pp. 356–61.

“Normalization Rules, Approximate Small Sample Properties and the TSLS Estimator” (with S. R. Johnson). *American Statistical Association Proceedings*, Business and Economic Statistics Section (December 1972), pp. 420–25.

“Uncertainty and Decision-Making in Water Resources” (with G. W. Dean). In *California Water: A Study in Resource Management*, Chapter 12, D. Seckler (editor). (Berkeley: University of California Press, 1971, pp. 233-50 and pp. 310-344).

“An Appendix on Water Resource Decision Making Under Conditions of Uncertainty” (with G. W. Dean). In *California Water: A Study in Resource Management*, D. Seckler (editor). (Berkeley: University of California Press, 1971, pp. 310–44).

“Forecasting Weekly Lemon Prices by a Distributed Lag Model with Fourier Transform Methods” (with Dean Chen). *American Statistical Association Proceedings*, Business and Economic Statistics Section (December 1970).

“A General Framework for Aggregation in Linear Programming Models” (with Quirino Paris). *Western Agricultural Economics Association Proceedings* (July 1970).

“A Time Series Analysis of the U.S. Hog Industry.” *Western Agricultural Economics Association Proceedings* (July 1969).

“Futures Price Behavior as a Stochastic Process” (with T. F. Cargill). *American Statistical Association Proceedings*, Business and Economic Statistics Section (August 1969).

### **Commissioned Papers, Governmental Reports, and Panel Discussion Papers**

“Multifunctionality in the EU: pollution or politics? Implications for Canadian Trade” (with K. Baylis, S. Peplow and L. Simon). Report for Agriculture and Agri-Food Canada, December 2005.

“Agri-environmental Policy in the European Union: Who’s in Charge?” (Kathy Baylis and Leo Simon). CATPRN Commissioned Paper CP 2006-4. (synopsis) [www.catprn.org](http://www.catprn.org)

“Agri-Environmental Programs in the United States and European Union” (Kathy Baylis and Leo Simon). Feedinfo 2005 <http://www.feedinfo.com>

“Fueling the Research Engine.” *California Monthly*, 109(5), April 1999.

“Private/Public Research: Knowledge Assets and Future Scenarios. Annual meeting of the American Agricultural Economics Association, Nashville, TN, August 1999.

“Agricultural Trade Liberalization and Capital Flows in the Americas” (with James Reitzes, Roger Hickey, and Jeremy Arnone). Center for Agricultural and Rural Development, GATT Paper 96–GATT 2, December 1997.

“The Judgment Proof Opportunity” (with Klaas van ’t Veld and Leo K. Simon). Discussion paper presented at the 2nd Toulouse Conference on Environmental Economics, Fondazione Eni Enrico Mattei Working Paper No. 83.97, May 1997.

“Information Asymmetries, Uncertainties, and Cleanup Delays at Superfund Sites” (with Leo K. Simon and Jinhua Zhao). Discussion paper presented at the 2<sup>nd</sup> Toulouse Conference on Environmental Economics, Fondazione Eni Enrico Mattei, Institut d’Economie Industrielle and INFRA, Toulouse, 14–16 May 1997.

“A Computable Policy Model of Eastern European Agriculture and the Food Industry” (with Janda, Goodhue, Lyons, and Simon). Prague Economic Papers, 1, 1996.

“Trade Analyses and Policy Design (TAPD) Activity to Support Agriculture and Agribusiness Projects in Central and Eastern European Countries.” Project report, Department of Agricultural and Resource Economics, University of California, Berkeley; coordinated by the Institute of Policy Reform (Grant No. M2055, Fund No. 79048) and funded by the U.S. Agency for International Development (Agreement PDC-0095-A-00-1126-00).

“Animal Agriculture’s Impact on Water Quality in California.” Panel discussion at a conference sponsored by the University of California Animal Agriculture Research Center, Agricultural Issues Center, and the Division of Agriculture and Natural Resources. Sacramento, CA, October 20, 1994.

“Multidisciplinary Problem-Solving and Issue-Oriented Work with the PC/TC Approach.” Prepared for the multidisciplinary workshop, “Strategies and Agendas for the Rural Social Sciences,” the Social Science Agricultural Agenda Project sponsored by The American Agricultural Economics Association, the Rural Sociological Society, the Agricultural History Society, and others, Kansas City, MO, August 1–4, 1991.

“International Policy Reform: Opportunities and Obstacles.” Prepared for Plenary Presentation at the Summer 1991 Meeting of the Business-Higher Education Forum, University of California, Santa Barbara, June 27–29, 1991.

“Futures Market Performance and Behavior.” Report prepared for the Managed Futures Symposium, New York, May 1–3, 1991.

“Urban Labor Markets and Economic Policy/Institutional Reform: Summary of a Workshop” (one of many collaborators). Development Discussion Paper No. 329 (Economic Policy Series). Cambridge: Harvard Institute for International Development, April 1990.

“Professional Relationships and the Role of Increasing Sophistication: Agricultural Economics and Economics” (with Richard E. Just). University of California, Department of Agricultural and Resource Economics. Unpublished manuscript, Berkeley, August 1989.

“United States Pledging Statement.” Report to the 32nd Meeting of the Intergovernmental Group on Indonesia. The Hague, Netherlands, June 1989.



“The Structure of the Intergovernmental Group on Indonesia.” The Hague, Netherlands. Unpublished report to the 32nd Meeting of the Intergovernmental Group on Indonesia, June 1989.

“A New Approach to Country Development Strategy Statements.” Report to the Administrator, Agency for International Development, May 1989.

“Privatization and the Provision of Social Services.” Confidential report to the Administrator, Agency for International Development, April 1989.

“The Thailand Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, March 1989.

“The Philippines Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, March 1989.

“The Pakistan Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, March 1989.

“Major Economic Constraints, Challenges and Objectives of the U.S. Foreign Assistance Program.” Position paper to the Administrator, Agency for International Development. Unpublished, March 1989.

“The Indonesia Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, March 1989.

“The Bangladesh Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, March 1989.

“The Afghanistan Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, March 1989.

“Third World Debt and A.I.D.’s Position.” Confidential Report to the Administrator, Agency for International Development, January 1989.

“An Institute for Policy Reform.” Position paper to the Administrator, Agency for International Development. Unpublished, January 1989.

“An Economic Development Consortium.” Position paper to the Administrator, Agency for International Development. Unpublished, January 1989.

“An A.I.D. Economic Research Associate and Fellowship Program.” Position paper to the Administrator, Agency for International Development. Unpublished, January 1989.

“Toward a Framework for the Design of Internal Agricultural Policy Reform.” Report presented to the Economic Research Service, U.S. Department of Agriculture, 1988.

“The Honduras Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, November 1988.

“The Guatemala Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, November 1988.

“Government Credibility, Partial Compensation, and the Market for Policy Reform.” Report to the International Agricultural Trade Consortium, August 1988.

“The El Salvador Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, November 1988.

“The Costa Rica Mission and Economic Analytical Support.” Confidential Report to the Administrator, Agency for International Development, November 1988.

“Determination of the Predominance of Various Expectation Patterns in Commodity Future and Spot Markets” (with Richard E. Just). University of California, Department of Agricultural and Resource Economics. Unpublished manuscript, Berkeley 1988.

“Restructuring the Farm Credit System” (with Susan Woodward). Confidential Report to the Farm Credit Administration, Washington, DC, 1987.

“The Effects of U.S. Macro and Micro Policies on LDC Debtors: Measuring Commodity Price Linkages” (with Marjorie Rose). Report presented to the International Monetary Fund. Washington, DC, 1987.

“The Environmental Effects of U.S. Agriculture and Food Policies: The Case of Water Quality and Quantity.” Confidential Report presented to the Environmental Protection Agency, Washington, DC, 1987.

“The Design and Implementation of Public Policy Reform.” Report to the Agency for International Development, Washington, DC, 1987.

“Political Failure and the Reform of Agricultural Policy.” Paper presented to the Australian Society of Agricultural Economics, Adelaide, Australia, February 1987.

“Necessary and Sufficient Conditions for Policy Reform.” Report to the Agency for International Development, Washington, DC, 1987.

“GATT Negotiations and Agriculture: Alternative Measures of Government Intervention.” Confidential Report presented to the U.S. Trade Representative, Washington, DC, 1987.

“Agriculture Research: The Incidence of Burden in the Public and Private Sector.” Confidential Report to the Agriculture Research Service, U.S. Department of Agriculture, 1987.

“Political Failure and the Design of U.S. Agricultural Policy.” In *The Science of Agriculture and Natural Resources—A Foundation for the Future*. Berkeley: Division of Agricultural and Natural Resources, University of California, 1986.

“Sources of Misery in California and U.S. Agriculture.” Report presented to the California League of Women Voters, Los Angeles, CA, 1986.

“Effects of Dollar Value Changes.” Report to the Conference on Pacific Rim: Issues and Opportunities. California Agricultural Trade Seminars, 1986.

“Political Failure and the Design of U.S. Agricultural Policy.” Town Hall California Reporter, March/April, 1987, pp. 3–4.

“Multiple Effects of Exchange Rates on Import Demand: The Case of U.S. Agricultural Trade with Japan” (with Yasuo Nishiyama). University Of California, Department of Agricultural and Resource Economics. Unpublished manuscript, Berkeley, 1986.

“Information, Risk Allocation, Transaction, and Linkage Efficiencies in Futures Markets” (with William E. Foster, Dermot Hayes, and Nicholas Walraven). University of California, Department of Agricultural and Resource Economics. Unpublished manuscript, Berkeley, 1986.

“Lead-Lag Price Relationships Among Commodity Futures Markets” (with Colin A. Carter). University of California, Department of Agricultural and Resource Economics. Unpublished manuscript, Berkeley, 1985.

“Real Income Stabilization and Food Security for LDC’s” (with Kathryn M. Gordon). University of California, Department of Agricultural and Resource Economics. Unpublished manuscript, Berkeley, 1984.

“The Efficiency and Equity Implications of Policy Alternatives in Agricultural Systems of LDCs” (with Richard E. Just and David Zilberman). University of California, Department of Agricultural and Resource Economics. Unpublished manuscript, Berkeley, 1982.

“Post-Bayesian Statistical Inference” (with Arnold Faden). University of California, Department of Agricultural and Resource Economics. Unpublished manuscript, Berkeley, 1982.

“An Optimal Dynamic Hedging Model for Grains” (with Ray Nelson and Andrew Schmitz). University of California, Department of Agricultural and Resource Economics. Unpublished manuscript, Berkeley, 1981.

“Construction of Decision Support Systems for Agricultural Marketing Boards and Other Public Agencies in Less Developed Countries: Part I” (with Joseph Yassour). AID Contract No. AID/DSAN-C-0001, Washington, DC, 1979.

“Construction of Decision Support System for the National Grains Authority of the Philippines: Part II” (with Joseph Yassour). AID Contract No. AID/DSAN-C 0001, Washington, DC, 1979.

“Development of Iowa Coal: A Systems Analytical Approach” (with R. Levins and A. Pagoulatos). Iowa State University, Energy and Mineral Resources Research Institute Report No. IS-ICP-9, Ames, IA, 1975.

“The Feasibility of Mining Coal in Iowa: An Economic Evaluation” (with R. A. Levins and M. D. Boehlje). Iowa State University, Energy and Mineral Resources Research Institute Report No. IS-ICP-6, Ames, IA, 1975.

“The Commonwealth Edison System” (with G. Fishelson). University of Chicago, Urban Economics Report, Chicago, 1975.

“Environmental Impacts of an Electrical Energy Systems Growth” (with G. Fishelson). University of Chicago, Urban Economics Report, Chicago, 1975.

“Environmental Effects of Altering the Existing Commonwealth Edison System” (with G. Fishelson). University of Chicago, Urban Economics Report, Chicago, 1975.

“Taxes as Solutions to Externalities” (with R. Zerbe). University of Chicago, Urban Economics Report, Chicago, 1974.

“Enforcement, Transaction Costs, and Monitoring of Pollution” (with G. Fishelson). University of Chicago, Urban Economic Report, Chicago, 1974.

“Approximate Adaptive Control Solutions to the U.S. Beef Trade Policy Problem.” (with J. W. Freebairn). University of Chicago, Center for Mathematical Studies in Business and Economics, Report No. 7337, Chicago, 1973.

“Learning, Production, and Investment in Natural Resource Industries.” University of Chicago, Center for Mathematical Studies in Business and Economics, Report No. 7336, Chicago, 1973.

“A Dynamic Econometric Model of the California-Arizona Orange Industry.” Unpublished Ph.D. dissertation, University of California, Davis, 1971.

### **Working Papers**

“The Giannini Foundation and the Welfare of California Agriculturalists in a Changing State, Nation and World”, CUDARE Working Paper , February 2009.

"Property Rights and Water Transfers: Bargaining Among Multiple Stakeholders" with Leo K. Simon and Susan E. Stratton. CUDARE Working Paper, forthcoming

"Managing R&D Risk in Renewable Energy" (with Maya Papineau) Department of Agricultural & Resource Economics, UCB. CUDARE Working Paper 1058. June 2008.

“Unintended Consequences: The Spillover Effects of Common Property Regulations” (with Marty Kovach, Ryan Stifter and Stephen Hamilton). Department of Agricultural and Resource Economics Working Paper No. 1053, University of California, Berkeley, March 2008

“Pollution and Land Use: Optimum and Decentralization” (with Richard Arnott and Oded Hochman), Department of Agricultural and Resource Economics Working Paper No. 1054, University of California, Berkeley, March 2008.

“The Political Economy of Groundwater Management in California” (with Susan E. Stratton).

“Optimal Taxation with Joint Production of Agriculture and Rural Amenities” (with G. Casamatta and L.K. Simon).

“Domestic Support Disciplines in the WTO” (with H.D. Gorter, Q. Luong, and L.K. Simon).

“Incentives and tradeoffs for politicians in the policy setting process” (with Ricardo H. Cavazos-Cepeda) submitted to 2007 MPSA Conference.

“Option Values and Externalities from Public/Private Interaction in Agricultural Research” (with Jason A. Winfree and Jill J. McCluskey). Presented at the 2005 Annual Meeting of American Agricultural Economics Association (AAEA), August 2005.

“Law in Vertical Market Structures: The Role of Benefit-Cost Analysis” (with Richard E. Just).

“Causes of Multifunctionality: Pollution or Politics?” (with Kathy Baylis, Stephen Peplow and Leo Simon). Food and Resource Economics Working Paper, 2005-01. University of British Columbia. <http://agecon.lib.umn.edu/cgi-bin/pubview.pl?pubid=78>

Agri-Environmental Programs in the United States and the European Union (with Kathy Baylis, Stephen Peplow and Leo Simon). Food and Resource Economics Working Paper, 2004-06. University of British Columbia.

“Does Community Involvement Matter? How Collective Choice Affects Forests in Mexico” (with Camille Antinori). Department of Agricultural and Resource Economics Working Paper No. 939, University of California, Berkeley, January 2003.  
[http://repositories.cdlib.org/are\\_ucb/939/](http://repositories.cdlib.org/are_ucb/939/)

"The Social Costs of an MTBE Ban in California" (with Gregory D. Adams, W. David Montgomery and Anne E. Smith). Department of Agricultural and Resource Economics Working Paper No. 932. University of California, Berkeley, June 2002.

"The Social Costs of an MTBE Ban in California (Condensed Version)" (with Gregory D. Adams, W. David Montgomery and Anne E. Smith). Department of Agricultural and Resource Economics Working Paper No. 931. University of California, Berkeley, June 2002.

"Complementarities and spill-overs in agricultural biotechnology mergers" (with Alan C. Marco). Department of Agricultural and Resource Economics Working Paper No. 930. University of California, Berkeley, June 2002.

“Fitting the Glass Slipper: Optimal Capital Structure in the Face of Liability” (with Klaas T. van 't Veld and Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 917. University of California, Berkeley, October 2000.

“Vertical Integration in Mexican Community Forestry” (with Camille M. Antinori). Department of Agricultural and Resource Economics Working Paper No. 915. University of California, Berkeley, October 2000.

"Environmental Remedies: An Incomplete Aggregation Game" (with Leo K. Simon and Jinhua Zhao). Berkeley Program in Law & Economics, Working Paper Series, Year 2000, Paper 21. <http://repositories.cdlib.org/blewp/21/>

"Valuing Research Leads: Bioprospecting and the Conservation of Genetic Resources" (with Arthur A. Small). Berkeley Program in Law & Economics, Working Paper Series, Year 2000, Paper 20. <http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1022&context=blewp>

"A Matlab Version of the Multilateral Bargaining Model Applied to the Ardour Case Study" (with R. Goodhue, S. Morardet, P. Rio, L. Simon and S. Thoyer). Working Paper, Cemegraf, Montpellier, France.

"Les Formes Institutionnelles de la Gestion de l'Eau en France et en Californie: Droits de propriete, decentralization et delegation" (with R. Goodhue, S. Morardet, P. Rio, L. Simon and S. Thoyer). Department of Agricultural and Resource Economics Working Paper. University of California, Berkeley, 1999.

"Intellectual Property and Market Structure in Agriculture" (with Leo K. Simon and Suzanne Scotchmer). Department of Agricultural and Resource Economics Working Paper No. 880, University of California, Berkeley, April 1999.

"Bioprospecting with Patent Races" (with Arthur Small). Department of Agricultural and Resource Economics Working Paper No. 878, University of California, Berkeley, 1999.

"The Basis for Political Preference Functions and Implications for Use" (with Jill J. McCluskey). Department of Agricultural and Resource Economics Working Paper No. 876, University of California, Berkeley, 1999.

"Zoning as a Control of Pollution in a Spatial Environment" (with Oded Hochman). Department of Agricultural and Resource Economics Working Paper No. 875, University of California, Berkeley, January 1999.

"A Dynamic Model of the Food Processing Sector in the New Market Economies of Central Europe" (with Rachael E. Goodhue, Robert Lyons, and Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 859, University of California, Berkeley, May 1998.

"Processor Placements and Producer Incentives: Analyzing Broiler Chicken Production Contracts" (with Rachael E. Goodhue and Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 858 rev., University of California, Berkeley, February 2000.

"Cleanup Delays at Hazardous Waste Sites: An Incomplete Information Game" (with Leo K. Simon and Jinhua Zhao). Department of Agricultural and Resource Management Working Paper No. 839, University of California, Berkeley, April 1999.

"A Computable Model of Eastern European Food Processing" (with Rachael E. Goodhue, Robert Lyons, and Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 838, University of California, Berkeley.



“Product Quality and Off-Farm Control: Fresh and Processed Tomatoes” (with Rachael E. Goodhue). Department of Agricultural and Resource Economics Working Paper, University of California, Berkeley.

“A Bayesian Model of Market Learning” (with Rachael E. Goodhue and Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 837, University of California, Berkeley.

“Public and Private Provision of Public and Private Goods: A Bargaining-Theoretic Perspective” (with Leo K. Simon). Department of Agricultural and Resource Management Working Paper No. 836, University of California, Berkeley, March 1998.

“The Market for Genetic Resources: Prior Information and Conservation Incentives.” Working Paper No. 831. Department of Agricultural and Resource Economics, University of California, Berkeley, 1998.

“Environmental Activism and the Public Interest (with Jill J. McCluskey). Department of Agricultural and Resource Economics Working Paper No. 802, University of California, Berkeley.

“Intellectual Property Rights and Market Structure in Agricultural Biotechnology” (with Arthur Small and Seung Jick Yoo). Department of Agricultural and Resource Economics Working Paper No. 799, University of California, Berkeley.

“Bioprospecting with Prior Ecological Information” (with Arthur Small). Giannini Foundation Working Paper No. 819, 1997.

“The Economic Value of Patents, Licenses, and Plant Variety Protection” (with Arthur A. Small). Department of Agricultural and Resource Economics Working Paper No. 797, University of California, Berkeley, June 1996. [http://repositories.cdlib.org/are\\_ucb/797](http://repositories.cdlib.org/are_ucb/797)

“The Analytical Framework for the TAPD Project” (with Rachael E. Goodhue, Robert Lyons and Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 762, University of California, Berkeley.

“Political Preference Functions and Political Economic Modelling” (with Leo K. Simon and Klaas van ’t Veld). Department of Agricultural and Resource Economics Working Paper No. 743, University of California, Berkeley.

“Inequality and the Choice of Redistributive and Public Good Policies: The Case of Agriculture” (with Harry de Gorter and Johan F.M. Swinnen). Department of Agricultural and Resource Economics Working Paper No. 742, University of California, Berkeley.

“Independence of Irrelevant Alternatives and Political Economy: A Critique and an Alternative” (with Leo K. Simon and Klaas T. van ’t Veld). Department of Agricultural and Resource Economics Working Paper No. 720, University of California, Berkeley.

“The Economics of Remediation: The Decision Problem Facing a Single PRP” (with Leo K. Simon and Jinhua Zhao). Department of Agricultural and Resource Economics Working Paper No. 711, University of California, Berkeley.

“The Political Economy of Transition: A Bargaining Theoretic Approach” (with Robert F. Lyons and Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 709, University of California, Berkeley.

“Instrument Selection in a Bargaining Model of Agricultural and Environmental Policy Reform” (with Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 708, University of California, Berkeley.

“Putty-Clay Politics in Transition Economies” (with Robert F. Lyons and Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 707, University of California, Berkeley, May 1996.

“Multilateral Bargaining in a Spatial Environment: Preliminary Results” (with Glenn W. Harrison, Ron Harstad, and Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 670, University of California, Berkeley.

“Transition to a Market Economy: The Case of Russia.” Department of Agricultural and Resource Economics Working Paper No. 666, University of California, Berkeley.

“A Strategic Model of Environmental Dispute Resolution” (with Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 662, University of California, Berkeley.

“The Political Economy of Productive and Predatory Policies: The Case of U.S. Dairy Policy” (with Harry de Gorter and David Nielson). Department of Agricultural and Resource Economics Working Paper No. 661, University of California, Berkeley.

“Academic Research in Future Markets Performance and Behavior.” Department of Agricultural and Resource Economics Working Paper No. 656, University of California, Berkeley.

“International Policy Reform: Opportunities and Obstacles.” Department of Agricultural and Resource Economics Working Paper No. 653, University of California, Berkeley.

“Commodity Versus Research Policies under Endogenous Political Weights” (with Harry de Gorter and Jo Swinnen). Department of Agricultural and Resource Economics Working Paper No. 649, University of California, Berkeley.

“A Framework for Analyzing Specific Agricultural Policy Reform” (with Richard E. Just and David Zilberman). Department of Agricultural and Resource Economics Working Paper No. 647, University of California, Berkeley, April 1993.

“Burden Sharing and Public Good Investments in Policy Reform: A Numerical Sensitivity Analysis” (with Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 637, University of California, Berkeley, February 1991.



“Burden Sharing and Public Good Investments in Policy Reform” (with Leo K. Simon). Department of Agricultural and Resource Economics Working Paper No. 635, University of California, Berkeley, September 1992.

“Interactions Among Money, Exchange Rates, and Commodity Prices” (with Pier Giorgio Ardeni). Department of Agricultural and Resource Economics Working Paper No. 621, University of California, Berkeley, March 1992.

“A Noncooperative Model of Collective Decision Making: A Multilateral Bargaining Approach” (with Leo Simon). Department of Agricultural and Resource Economics Working Paper No. 620, University of California, Berkeley.

“Food Security, Land Allocation, and Country Hedging: A Case Study of China” (with Jianmin Liu). Department of Agricultural and Resource Economics Working Paper No. 594, University of California, Berkeley.

“Policy Preference Functions: Grand Themes and New Directions” (with H. Alan Love and Diana M. Burton). Department of Agricultural and Resource Economics Working Paper No. 571, University of California, Berkeley, May 1990.

“Coupling Wealth Transfer Under Uncertain Rates of Technical Change (with William E. Foster). Department of Agricultural and Resource Economics Working Paper No. 542, University of California, Berkeley, August 1990.

“LDC Debt and Policy Linkages in the Determination of World Commodity Prices” (with Coleman Bazelon). Department of Agricultural and Resource Economics Working Paper No. 538, University of California, Berkeley, June 1990.

“Endogenous Policy Theory: The Political Structure and Policy Formation” (with Pinhas Zusman). Working Paper No. 537. Department of Agricultural and Resource Economics, University of California, Berkeley, 1990.

“The Role of Institutions and Policy Reform in U.S. Foreign Assistance.” Working Paper No. 522, Department of Agricultural and Resource Economics, University of California, Berkeley, 1990.

“Endogenizing U. S. Milk Price Supports” (with Harry de Gorter). Department of Agricultural and Resource Management Working Paper No. 504, University of California, Berkeley, 1989.

“Flexible Public Policy: The Case of the United States Wheat Sector” (with H. Alan Love). Department of Agricultural and Resource Management Working Paper No. 494, University of California, Berkeley, 1988.

“Agricultural Policy in Economies with Uncertainty and Incomplete Markets” (with Robert D. Innes). Department of Agricultural and Resource Economics Working Paper No. 457, University of California, Berkeley, 1987.

“Monetary Policy and Relative Farm Prices” (with James A. Chalfant and Kostas G. Stamoulis). Department of Agricultural and Resource Economics Working Paper No. 413, University of California, Berkeley.

“Futures Market and Efficiency” (with Nicholas A. Walraven). Department of Agricultural and Resource Economics Working Paper No. 411, University of California, Berkeley, 1986.

“Macroeconomics, Overshooting, and the U.S. Agriculture Sector” (with Yasuo Nishiyama and Kostas G. Stamoulis). Department of Agricultural and Resource Economics Working Paper No. 410, University of California, Berkeley, 1986.

“The Effects of Monetary Policy on U.S. Agriculture” (with James A. Chalfant, H. Alan Love, and Kostas G. Stamoulis). Department of Agricultural and Resource Economics Working Paper No. 409, University of California, Berkeley, 1986.

“Exchange Rates: Backward Linkage on U.S. Agriculture—The Case of Japan” (with Yasuo Nishiyama). Department of Agricultural and Resource Economics Working Paper No. 389, University of California, Berkeley, 1985.

“Monetary Policies and the Overshooting of Flexible Prices: Implications for Agricultural Policy” (with James A. Chalfant and Kostas G. Stamoulis). Department of Agricultural and Resource Economics Working Paper No. 372, University of California, Berkeley, 1985.

“Farm Capital Structure and the Agency Cost of Outside Equity Ownership” (with Kathryn M. Gordon). Department of Agricultural and Resource Economics, University of California, Berkeley, 1990.

### CASE STUDIES

Harvard University, Graduate School of Business Administration  
Spring, 1978

*Biogas of Colorado.*

*Biotechnology and Agribusiness.*

*Costs and Benefits of Models and Their Use in the Food Sector.*

*Crown Zellerbach and the Management of Natural Resources.*

*DRI Commodity Management Consultants.*

*Effective Management and Utilization of Information Systems.*

*Food Conglomerate, Inc.*

*MacIntosh Chocolate Company (a).*

*MacIntosh Chocolate Company (b).*

*MacIntosh Chocolate Company (c).*

*MacIntosh Chocolate Company (d).*

*Manual for Designing, Constructing, and Using a Decision Support System.*

*Note on Agricultural Sector Forecasts and Policy Evaluations.*

*Note on Market Risk in Agribusiness.*

*Note on Strategic Policy Evaluations.*

*The Philippines National Rice and Grain Authority*

*Tariff and Nontariff Trade Barriers*

*The World Bank and Agriculture in Less Developed Countries.*

Spring, 1977

*Agricultural Chemical International.*  
*Contractual Relationships in the Turkey Industry.*  
*Contractual Relationships in the Beet Sugar Industry.*  
*Fed-Rite Food Distribution.*  
*Forecasting in the Food Freezing Sector.*  
*High Fructose Corn Syrup Manufacturing (a).*  
*High Fructose Corn Syrup Manufacturing (b).*  
*Note on Risk Management Frameworks.*  
*Proposals for Grain Reserves.*  
*Spreckels Sugar Division (a).*  
*Spreckels Sugar Division (b).*  
*U.S. Feed Grain Reserve Policy.*

Fall, 1976

*Choosing Among Risk Profiles.*  
*Importance of a Good Forecasting System.*

Spring, 1976

*Chase Econometric Associates, Inc.*  
*Chemical Bank (a).*  
*Chemical Bank (b).*  
*Common Commodity Future Market Fund.*  
*Data Resources, Inc.*  
*Design and Implementation of Decision Models.*  
*Florida Department of Citrus.*  
*Food Grain Import Policies in Bangladesh (a).*  
*Food Grain Import Policies in Bangladesh (b).*  
*Hedging and Pure Speculation.*  
*Israel Poultry Marketing Board.*  
*Rancho Matilija.*  
*Statistical Decision Theory Frameworks.*  
*Thomte and Company.*

Spring, 1974

*Simulation Models in Agribusiness.*  
*Survey and Use of Decision Support Systems.*

### **SELECTED KEYNOTE OR PLENARY SESSION PRESENTATIONS**

“Is Biofuel a Good Investment?” To be presented at the Third Berkeley Conference on the Bioeconomy, Berkeley, CA April 29-30.

“Political Institutions, Governance Structures and Food Policy” (with Johann Swinnen), Allied Social Science Associations Annual Meeting, Atlanta, GA, January 2010.

“Risk and biofuels” (with Maya Papineau). Presented at *The Biofuel Situation and Policies in Developing Countries* conference, Berkeley, CA, May 2009.

"U.S. versus E.U. Biotechnology Regulations and Comparative Advantage: Implications for Future Conflicts and Trade" (with Gal Hochman and David Zilberman. Presented at the European Commission Transatlantic Biosafety and Biodiversity collaborative research workshop at UC Berkeley, December 11-12, 2008.

"Managing R&D Risk in Renewable Energy" (with Maya Papineau) Presented at *Risk, Infrastructure, and Industry Evolution* conference, June 2008.

"Commodity Price Boom: Implications for California Agriculture, Resources and Environment", Presented at President's Advisory Commission on Agriculture and Natural Resources, April 2008.

"Agricultural Biotechnology in California and the EU", Presented at EU-California Regulatory Cooperation Project Workshop, February 2008.

"Collective Choice: A Multilateral Bargaining Approach" Presented at Beijing University, May 2007.

"Property rights and collective action in natural resources with application to Mexico", presented June 2007, Casa de California, Mexico City.

"Second Stage: Political Economy Analysis of Distortion Patterns" Presented at Political Economy of Distortions to Agricultural Incentives conference, July 2007.

"Political Economy of Distortion Patterns Across Time and Countries." Presented at The World Bank Conference on Distortions to Agricultural Incentives in Developing Countries, Bellagio Center, Bellagio, Italy, November 2006.

"General Equilibrium in Vertical Market Structures: Monopoly, Monopsony, Predatory Behavior and the Law." (with Richard E. Just) Benefit-Cost Analysis Conference, University of Washington, Seattle, Washington May 18-19, 2006.

"The Giannini Foundation and the Welfare of California Agriculturalists in a Changing State, Nation, and World." The Giannini Foundation of Agricultural Economics 75<sup>th</sup> Anniversary Symposium, UC Davis, California, May 3, 2006.

"Money and Control: Generating Transfer Water in California's Imperial Valley" (with Leo Simon and Susan Stratton). Conference of the International Association of Agricultural Economists, Queensland, Australia, 12-18 August, 2006.

"Complementarities across Quality Incentive Instruments" (with Rachael Goodhue). Annual Meeting of the Allied Social Science Associations, Boston, Massachusetts, January 6-8, 2006.

"Option Values and Externalities from Public/Private Interaction in Agricultural Research" (Jason A. Winfree and Jill J. McCluskey). Presented at the Annual Meeting of American Agricultural Economics Association (AAEA), August 2005.

“Causes of Multifunctionality: Externalities or Political Pressure?” (with Kathy Baylis, Stephen Peplow and Leo Simon) Annual Meetings of the Western Agricultural Economics Association, San Francisco, California, July 6-8, 2005.

Nutrition, Food, Policies, and Obesity, American Agricultural Economics Association Annual Meeting, invited principal paper presentation, Providence, Rhode Island, July 24–27, 2005.

“Governance Structures and Multilateral Bargaining in Natural Resource Systems,” Toulouse Roundtable on Economic Policy-tribute to Jean Jacques Laffont, June 30–July 2005, Toulouse, France

“The political economy of agri-environmental policies in the U.S. and the EU,” Institute of European Studies Center for Governance and Institutions, University of California, Berkeley, May 27–28, 2005.

“Are Environmental Toxins a Source of Health Shocks to Children? Evidence from Hispanic Children in the U.S.” (with Bo MacInnis). Presentation at the 2005 Annual Meeting of American Economic Association, Philadelphia, Pennsylvania, January 7–9, 2005.

"Property Rights and Water Transfers: Bargaining Among Multiple Stakeholders" with Leo K. Simon and Susan E. Stratton. Selected for presentation at the Center for Sustainability, Environment, Equity and Partnership's International Conference on "Security and Sustainability in Water Resources" in Kathmandu, Nepal, September 6-9, 2004.

“Transaction Costs and Organic Marketing: Evidence from U.S. Organic Produce Farmers” (with Bo MacInnis). Presented at the 2004 Annual Meeting of American Agricultural Economics Association (AAEA), Denver, Colorado, August 1–4, 2004.

“Vulnerable Children: The Case of Pesticide Exposure and Hispanic Children” (with Bo MacInnis). Presented at the 2004 Annual Meeting of American Agricultural Economics Association (AAEA), Denver, Colorado, August 1–4, 2004.

Structure and Power in Multilateral Negotiations: An Application to French Water Policy, Society for Economic Design 2004 (SED 2004), Universitat de les Illes Balears, Palma de Mallorca, Spain, June 29–July 3, 2004.

Price-Location Games when Consumers Have Heterogeneous Tastes,” with Leo K. Simon. Presented at the 6<sup>th</sup> INRA-IDEI (Institut National de la Recherche Agronomique-Institut d’Economie Industrielle) Conference “Industrial Organization and the Food Processing Industry,” June 4–5, 2004 in Toulouse, France.

Stan Johnson: A Giant Among Mentors, Opening invited address, Exploring Frontiers in Applied Economics, A Symposium in Honor of Stanley R. Johnson, Iowa State University, Ames, IA, October 24–25, 2003. Published electronically in Essays in Honor of Stanley R. Johnson: <http://www.bepress.com/sjohnson/art5>.

John Kenneth Galbraith: The Early Years, (with Susan Stratton), First Galbraith Forum/Lecture of the Galbraith Commemorative Project, 2003 Annual Meeting AAEA Foundation, Keynote Speaker for Tribute to John Kenneth Galbraith, Montreal, Quebec, July 28–30, 2003.

Agri-environmental Programs and the Future of the WTO (with Leo Simon and Kathy Baylis), Capri, Italy, June 24–26, 2003.

Canada-U.S. Agricultural Policy and the WTO, Keynote Speaker, Conference of the Canadian Studies Program, International and Area Studies Institute, University of California, Berkeley, CA, May 9, 2003.

Incomplete Aggregation Games (with Leo Simon), Department of Agricultural and Resource Economics Seminar, University of California, Berkeley, CA, May 9, 2003.

“Potential Financial Innovations in the Development of Biodiversity and Renewable Resources,” presentation at the Milken Institute, April 2003.

Public-Private Research Agreements: Where Does the Control Reside? Distinguished Speaker Seminar, Michigan State University, Lansing, MI, November 14, 2002.

Complementarities and Spill-overs in Mergers: An Empirical Investigation Using Patent Data (with Alan Marco). Eleventh Annual WZB Conference on Industrial Organization, Innovation Policy in International Markets, Social Science Research Center Berlin WWZB) and the Centre for Economic Policy Research (CEPR), Berlin, October 2002.

Structure and Power in Multilateral Negotiations: An Application to French Water Policy, (with Leo Simon, Rachael Goodhue and Sylvie Morardet). Second World Congress of Environmental and Resource Economists, Monterey, CA, June 2002.

Genetic Resource Libraries: Bioprospecting and Knowledge Assets, (with Arthur Small). Second World Congress of Environmental and Resource Economists, Monterey, CA, June 2002.

Ecological Effects of Timber Contracting in Mexico’s Community Forestry Organizations, (with Camille Antinori). Second World Congress of Environmental and Resource Economists, Monterey, CA, June 2002.

Financial Contracts Embedded in R&D Agreements. Natural Resource Management, Growth and Political Economy: A symposium in honor of Professor Eithan Hochman, Hebrew University, Rehovot, Israel, June 3, 2002.

A Financial Contracting Approach to Public/Private Relationships. Tween Seminar, Ohio State University, May 30, 2002. Public/Private Research Agreements. CSHE 2001–2002 Grant Recipients Colloquium, Berkeley, CA, May 10, 2002.

Public-Private Relationships in Horticulture R&D. Workshop on Biotechnology for Horticultural Crops, Monterey, CA, March 7–9, 2002. Structuring Public/Private Research Agreements. Conacyt Workshop on University-Industry Collaboration, University of California, Berkeley, December 4, 2001.

Structuring Public/Private Research Agreements. Beahrs Environmental Leadership Program, Workshop 6: “Innovation, Technology, and Entrepreneurship,” Berkeley, CA, July 23, 2001.



Genetic Resource Libraries: Bioprospecting and Knowledge Assets (with Arthur Small). NCEAS Workshop on Economics of Biodiversity, Santa Barbara, CA, May 2001.

Conceptual Foundations of Expectations and Implications for Estimation of Risk Behavior (with Richard Just). Annual Meetings of Regional Project SERA-IEG 31: Economics and Management of Risk in Agriculture and Natural Resources, Gulf Shores, AL, March 22–24, 2001.

Incentives for Innovation. NC208 Conference: R&D Policies and Impact Assessment, Berkeley, CA, March 30–31, 2001.

Public Universities and Agricultural Biotechnology, American Association for the Advancement of Science Annual Meeting and Science Innovation Exhibition, Session on the Public Sector's Role in Agricultural Biotechnology, San Francisco, CA, February 18, 2001.

Structuring Public/Private Research Agreements. 2001 Agriculture Program Conference, Texas A&M University, College Station, TX, January 10, 2001.

Mergers and Intellectual Property in Agricultural Biotechnology, (with Alan Marco). ICABR Fourth International Conference on the Economics of Agricultural Biotechnology, Ravello, Italy, August 24–28, 2000.

Biotechnology R&D in Developing Countries: Negotiating Public-Private Research Partnerships, (with Leo Simon and Holly Ameden). Fourth International Conference on the Economics of Agricultural Biotechnology, Ravello, Italy, August 24–28, 2000.

Second-Phase Reform Measures in Latin America. Meeting of the Boards of Governors IDB/IIC at the Conference: Development of the Rural Economy and Poverty Reduction in Latin America and the Caribbean, New Orleans, LA, March 24, 2000.

Knowledge Gaps, Private/Public Alliances. Fontagro Research Design Conference, Texas A&M University, College Station, TX, November 11, 1999.

Knowledge Gaps, Private/Public Alliances: Interfaces Seminar, Columbia University, New York, NY, November 10, 1999.

Negotiating Public/Private R&D Alliances. Assessing the Impact of Agricultural Research on Poverty Alleviation. GIAT Conference, San José, Costa Rica, September 16, 1999.

What Future for Agriculture as a Knowledge Based Industry. USDA, ERS, Washington, DC, August 12, 1999.

Do Incentives Matter? Product Quality and Contract Incentives in Processing Tomatoes. Presented to AAEE Conference, Nashville TN, August 11, 1999.

Public and Private Research: Knowledge Assets and Future Scenarios. Fellows Keynote Address. AAEE Conference, Nashville TN, August 10, 1999.

Intellectual Property and Market Structure in the Biotechnology Industry. AAEE Conference, Nashville TN, August 8–11, 1999.

Intellectual Property and Market Structure in Agriculture. National Bureau of Economic Research Summer Institute, July 19, 1999.

Intellectual Property, Complementarities and Competition: Assessing Organizational Changes in Agbiotech. Transitions in Agbiotech Conference, Washington DC, June 24–25, 1999.

Intellectual Property and Market Structure in Agriculture. Conference on “The Shape of Coming Agricultural Biotechnology Transformation: Strategic Investment and Policy Approaches from an Economic Perspective,” Rome, Italy, June 17, 1999.

Agricultural Biotechnology’s Complementary Intellectual Assets. Conference on “The Shape of Coming Agricultural Biotechnology Transformation: Strategic Investment and Policy Approaches from an Economic Perspective,” Rome, Italy, June 17, 1999.

Opening Session Remarks. Wildlife Management Institute, 64<sup>th</sup> North American Wildlife and Natural Resources Conference. Burlingame, CA, March 29, 1999.

Intellectual Property and Market Structure in Agriculture. R&D Investment and Economic Growth in the 20th Century Conference, Berkeley, CA, March 27, 1999.

The New Rent Seeking: Implications for International Trade. Agricultural Globalization, Trade and the Environment Conference. Berkeley, CA, March 8–9, 1999.

Alignment of Public/Private Institutions in the Biotechnology Revolution. USDA Agricultural Outlook Forum, Washington DC, February 22–23, 1999.

What will the Impact of Intellectual Property Issues be on the Practice of Agriculture in the Future of California. DANR Statewide Conference, Sacramento, CA, February 2, 1999.

The Market for Genetic Resource Conservation. Association of Environmental and Resource Economists Papers Sessions at the Allied Social Science Associations 1999 Annual Meeting. New York, NY, January 4, 1999.

Intellectual Property and Alignment of Public and Private Incentives. “Biotechnology, 1998: From Research Pipeline to Marketplace.” Heidrick Museum, Woodland, CA, November 11, 1998.

Collective Choice in Water Resource Systems. “Workshop on the Political Economy of Water Pricing Implementation.” The World Bank, Washington DC, November 3–5, 1998.

Deriving Biodiversity Option Value within a Model of Biotechnology Research and Development. Conference on “Valuing and Managing Ecosystems: Economic Research.” NSF/EPA, Washington, DC, October 29, 1998.

University/Private Agreements and Public Good Research. University-wide Patent Coordinators Meeting, Soizic Cafe, Oakland, CA, October 15, 1998.



A Bayesian Model of Market Learning. Department of Agricultural and Resource Economics, University of California, Berkeley seminar, May 1998; and at Stonybrook conference on Interactive Dynamics and Learning, July 1998.

Intellectual Property and Alignment of Public and Private Incentives: Crowding In Public Good Research. “Knowledge Generation and Transfer: Implications for Agriculture in the 21st Century.” Faculty Club, University of California, Berkeley, June 18–19, 1998.

American Agricultural Politics. Workshop, Council for Economy Analysis, Paris, France, May 29, 1998.

Water Resource Systems in California and France: Similarities and Differences. University of Montpellier faculty, May 30, 1998.

Valuing Biodiversity. Prepared for “Managing Human-dominated Ecosystems,” Missouri Botanical Garden. St. Louis, MO, March 27, 1998.

What Future for California Agriculture—Where Are We Going? California Citrus Expo, Visalia, CA, March 12, 1998.

What Future for California Agriculture? Chancellor’s Agricultural Advisory Council. University of California, Riverside, December 2, 1997.

Stigmatized asset value: is it temporary or permanent? (with J McCluskey) Presented at the University of California, Berkeley, CA, Real Estate Ph.D. Seminar at the Haas School of Business, November 1997.

What Future for Agriculture? California Commodity Committee Annual Meeting. Davis, California, October 29, 1997.

Food Security, Diversification, and Resource Management; Refocusing the Role of Agriculture. International Conference of Agricultural Economists, Sacramento, California, August, 1997.

Value Differentiation. American Agricultural Economics Association, July 1997.

Value Differentiation in Agriculture: Driving Forces and Complementarities. Prepared for “Vertical Relationships and Coordination in the Food System.” Università Cattolica del Sacro Cuore, Piacenza, Italy, June 1997.

Value Differentiation in Agriculture: Driving Forces and Complementarities. “Vertical Relationships and Coordination in the Food System,” University of California, Berkeley, June 12–13, 1997.

Stigma of environmental damage or residential property values (with J McCluskey). Presented at the American Agricultural Economics Association Meeting, Toronto, Canada, 1997.

Value Differentiation and the Broiler Industry. University of Paris, May 13, 1997.

Deriving Biodiversity Option Value within a Model of Biotechnology Research and Development. 1997 Workshop on Valuation and Environmental Policy. NSF/EPA Partnership for Environmental Research. Arlington, Virginia, April 7–8, 1997.

Taking Responsibility for our Environments. 3rd Annual Environmental Partnerships Symposium, “The City and the Environment.” University of California, Berkeley, Friday, November 22, 1996.

Incentive Structures for Allocating Public Research Resources. “Global Agricultural Science Policy for the Twenty-First Century.” Melbourne, Australia, August 16–18, 1996.

Presented Opening Remarks to Conference, Voices from the Commons, International Association for the Study of Common Property. University of California, Berkeley, June 5, 1996.

A New Perspective on Sustainability: A Framework of Dispute Resolution. Environmental Leadership Roundtable, University of California Extension, San Francisco, California, May 17, 1996.

Cooperatives in Transition: Pros and Cons of Free Enterprise in an Uncertain World. Conference on “Industrial Organization and the Food Processing Industry,” IDEI and INRA. Toulouse, France, March 28 & 29, 1996.

Cooperatives in Transition: Pros and Cons of Free Enterprise in an Uncertain World. Conference on “Industrial Organization and the Food Processing Industry,” IDEI and INRA. Hong Kong. January 1996.

Institutions, Scientific Technology, and the Future of Agriculture. American Feed Industry Association Key Management Conference. San Diego, California, February 9, 1996.

Institutions, Scientific Technology, and the Future of Agriculture. South Central Regional Academic Conference. Division of Agricultural and Natural Resources, University of California, Salinas, California, February 8, 1996.

U.S. Agricultural Policy in the United States. University of California Discussion. Berkeley, California, September 13, 1995.

A Computable Policy Model of Eastern European Agriculture. IPE-CERGE-EI Conference, “Agriculture and Trade Transition Economies: Policy Design and Implementation.” Prague, Czech Republic, July 28 & 29, 1995.

The Future of California’s Natural Resources. State of California, Resources Agency. University of California, Davis, California, June 22, 1995.

The Environmental Population Tradeoff. Symposium on “Shaping Agriculture in the 21st Century.” Radisson Hotel, Davis, California, June 22, 1995.

The College of Natural Resources and Agriculture. University Committee on Research Policy. University of California, Oakland, California, June 20, 1995.

Gordon Rausser, Ph.D.  
Page 46 of 60

---

College of Natural Resources Commencement Ceremony, 1995. Presented to the graduating class of 1995. University of California, Berkeley, California, May 1995.

Modelling Multilateral Bargaining and Negotiation Processes. School of Business, Stanford University. Stanford, California, May 1995.

A Vision for the College of Natural Resources. Nutrition, Education, and Family Development Symposium. University of California, Berkeley, May 17, 1995.

Campus Environmentalism/Earth Day. Environmental Spirit Conference (Earth Day). University of California, Berkeley, April 13, 1995.

Sustainable Agriculture and Pest Control. Faculty and Student Symposium on Sustainable Agriculture and Pest Control. University of California, Berkeley, April 12, 1995.

A New Structure for the College of Natural Resources. UC Berkeley's Council of Deans. University of California, Berkeley, April 4, 1995.

Regulating Multiple Polluters: Deterrence and Liability Allocation. University of Michigan, February 1995.

The College of Natural Resources' Role in Biology. Chancellor's Advisory Council, University of California, Berkeley, January 25, 1995.

The Economic Situation and its Impact on Tomorrow's Business. Protein Technologies International Conference, "Staying Ahead of Competition," a seminar of macro and micro issues affecting the poultry industry. Atlanta, Georgia, January 17, 1995.

International Environmental Regulations. Address at the Institute D'Economie Industrielle. Toulouse, France, November, 1994.

The Future of California Agriculture. Ad Hoc Division of Natural Resources Committee (TICHO). University of California, Oakland, California, January 6, 1995.

Challenges to California Agriculture. Executive Seminar on Agricultural Issues. Sacramento, California, December 13, 1994.

Strategies and Options for Sustaining Animal Agriculture—A Watershed Perspective. Panelist at the Animal Agriculture Impacts on Water Quality in California Conference, Animal Agriculture Research Center and Agricultural Issues Center, University of California at Davis, Sacramento, October 20, 1994.

Valuation of Intellectual Property. Stanford Law School, Stanford University. Stanford, California, October 7, 1994.

Alternative Frameworks for Evaluating Natural Resource Damages. University of California. Los Angeles, California, April 7, 1994.

GATT Agricultural Policy Reform: A United States Perspective. Major address to the Regional Council on “Strategies and Perspectives in Agricultural Policies” at the conference, “Agricultural Markets: Mechanisms, Failures, Regulations.” Institute D’Economie Industrielle, Toulouse, France, October 12–13, 1993.

The Political Economy of Agricultural/Environmental Policy Reform. Conference on “Agricultural Markets: Mechanisms, Failures, Regulations.” Institute D’Economie Industrielle, Toulouse, France, October 12–13, 1993.

The Political Economy of Technology and Commodity Policy in the U.S. Dairy Industry. Conference on “Agricultural Markets: Mechanisms, Failures, Regulations.” Institute D’Economie Industrielle, Toulouse, France, October 12–13, 1993.

Contaminant Dynamics and the Cost of Groundwater Quality Regulations, with Alan Marco, David Sunding and David Zilberman. Annual Meetings of the American Agricultural Economics Association, August 1993.

Political Power Theory: Explanation and Description. Opening invited address, Pinhas Zusman Retirement Conference. Hebrew University, Rehovot, Israel, June 1993.

Endogenous Political Economy. Ben Gurion University. Israel, June 1993.

Alternative Instruments for Pollution Control. Economics Department, Hebrew University. Rehovot, Israel, June 1993.

A Strategic Model of Environmental Dispute Resolution. Workshop on Environmental Economics, Santa Barbara, California, May 7–8, 1993.

Transition to a Market Economy: The Case of Russia. Cal Open House, University of California. Berkeley, California, April 24, 1993.

Transition to a Market Economy: The Case of Russia. Keynote Address to U.S. Fund for Democracy and Development. March 1993.

The Political Economy of the Transition Process: The Role of Alternative Governance Structures. American Agricultural Economics Association Meetings. Anaheim, California, January 5 & 6, 1993.

Environmental and Agricultural Policy Linkage and Reforms in the United States under the GATT. American Agricultural Economics Association Meetings, December 1992.

Recent Advances on Futures Markets Performance and Behavior. Fourth Annual Managed Futures Symposium, “Managed Futures as an Institutional Investment.” Chicago, September 30 through October 2, 1992.

An Emerging Framework for Economic Development: An LDC Perspective. Keynote address at the conference, “Industrial Policy for Agriculture in the Global Economy.” Iowa State University, Ames, September 16–17, 1992.

New Frameworks for Designing Compatible Incentives for Policy Reform. Invited Address to the U.S. Agency for International Development. September 1992.

Internal Versus External Agricultural Policy Reform: GATT Negotiations in the Uruguay Round. Invited paper for the American Political Science Association. Chicago, Illinois, September 1992.

A Noncooperative Model of Collective Decisionmaking: A Multilateral Bargaining Approach. American Political Science Association meetings. Chicago, Illinois, September 1992.

A Collective Choice Model for Conflict Resolution in Water Resource Systems. Conference on "Water Quantity/Quality Disputes and the Resolution." Washington, DC. May 2 & 3, 1992.

Environmental and Agricultural Policy Linkages and Reforms in the United States Under the GATT. Economics Department. Purdue University, March 1992.

Environmental and Agricultural Policy Linkages and Reforms in the United States Under the GATT. Economics Department. Iowa State University, March 1992.

State-Market-Civil Institutions: The Case of Eastern Europe. Invited address at the conference, "State, Market, and Civil Institutions: New Theories, New Practices, and Their Implications for Rural Development." Cornell University, New York, December 13 and 14, 1991.

Liberties and Economic Growth. Keynote address, World Conference on Economic Development. Raleigh-Durham, North Carolina, November 19–21, 1991.

Multidisciplinary Problem-Solving and Issue-Oriented Work with the PC/TC Approach. Keynote address at the multidisciplinary workshop on "Strategies and Agendas for the Rural Social Sciences" under the auspices of the Social Science Agricultural Agenda Project, and sponsored by The American Agricultural Economics Association, the Rural Sociological Society, the Agricultural History Society, et al. Kansas City, Missouri, August 1–4, 1991.

International Policy Reform: Opportunities and Obstacles. Plenary presentation at the Summer 1991 Meeting of the Business-Higher Education Forum. University of California, Santa Barbara, June 27–29, 1991.

The Political Economy of Transition in Eastern Europe: Packaging Enterprises for Privatization. Institute of International Studies, University of California, Berkeley, May 1991.

Futures Market Performance and Behavior. Keynote address at the Managed Futures Symposium. New York, May 1–3, 1991.

The Political Economy of Transition in Eastern Europe: Packaging Enterprises for Privatization. Simon Fraser University. British Columbia, Canada, April 1991.

The Political Economy of Transition in Eastern Europe: Packaging Enterprises for Privatization. Institute of Policy Reform Conference on Institutions and the Transition to a Market Economy. Prague, Czech Republic, March 1991.

Agricultural Reforms in the USSR: A Scientist's Attitude. Soviet-American Symposium. Moscow, October 1990.

The Political Economy of the European Community's Agricultural Policy. Keynote address to the European Agricultural Economics Association. The Hague, September 1990.

Market Politics and Alternative Transition Paths. Conference on "Rural Reform in Socialist Countries: Dilemmas and Strategies," sponsored by the World Bank and the National Bank of Hungary. Budapest, Hungary, August/September 1990.

The Agency for International Development Paradigm on Policy Reform and Economic Development. Major invited address to the Allied Social Science meetings. Atlanta, Georgia, December 1989.

Agricultural Policy Alternatives for the 1990s. Keynote address to the American Agricultural Law Association. San Francisco, California, November 1989.

A New Paradigm for Economic Development. Keynote address at the Economic Development Consortium. November 1989.

An Assessment of the Agricultural Economics Profession. Major invited address to the American Agricultural Economics Association meetings. Baton Rouge, Louisiana, August 1989.

New Institutional Economics and Public Policy. Major invited address to the Development Studies Program, Institute for International Research. The American University, July 1989.  
The Evolution and Coordination of U.S. Commodity and Resource Policies. Keynote address at the CARP Symposium. University of Maryland, College Park, May 1989.

Supporting Coalitions for Policy Reform and Institutional Change. Invited plenary presentation to the Indonesian Economic Association, Thailand Economic Association, Pakistan Economic Association, Bangladesh Economic Association, Egyptian Economic Association. February 1989.

The Market for Public Policy Reform. Invited plenary address to the 33rd Annual Conference of the Australian Agricultural Economics Society. New Zealand, February 1989.

Dynamic Welfare Analysis in Commodity Futures Markets. Major invited address to the International Conference of the Applied Econometrics Association. Washington, DC, October 1988.

Endogenizing Policy in Models of Agricultural Markets. Major invited address presented at the Plenary Session of the International Association of Agricultural Economists. Buenos Aires, Argentina, August 1988. Trade Negotiations, Institutional Changes, and Policy Reform. Major invited address to the International Agricultural Trade Consortium. Washington, DC, August, 1988.

The Macroeconomic Dimension of Agricultural Policy Reform. Major invited address at the World Food Conference. Ames, Iowa, June 1988.



The Design and Implementation of Public Policy Reform. Keynote address at the Conference on Agricultural Economic Policy Reform in Egypt. Cairo, Egypt, July 1987.

Stability Issues in Policy Analysis. Major invited address at the Conference on Agricultural Stability in Farm Programs: Concepts, Evidence, and Implications. North Carolina State University, Raleigh, May 1987.

Alternative U.S. Agricultural Trade Policy. Major address to the Benjamin E. Lippincott Symposium on Policy Coordination in World Agriculture. University of Minnesota, St. Paul, April 1987.

Macroeconomic Linkages in U.S. Agriculture. Keynote address at the First Rod F. Ziemer Symposium. University of Georgia, Athens, March 1987.

Political Failure and the Reform of Agricultural Policy. Keynote address to the Australian Agricultural Economics Society. Adelaide, Australia, February 1987.

Public Policy in U.S. Agriculture. Invited major address to the School of Agriculture, the University of Western Australia. Perth, Australia, February 1987.

The Formulation of Agricultural Policy in the United States: Circa, 1987. Invited plenary address to the Australian Agricultural Economics Society and Bureau of Agricultural Economics. Canberra, Australia, February 1987.

The State of Agricultural Economics. Paper presented at the American Agricultural Economics Association Annual Meeting, Iowa State University, August 1986.

New Developments in Economics. Paper presented at the Conference on Agriculture in Rural Areas Approaching the 21<sup>st</sup> Century: Challenges for Agricultural Economics, Ames, IA, August 1986.

Agriculture, Trade, and Macroeconomics. Paper presented at the Conference on Agriculture in Rural Areas Approaching the 21<sup>st</sup> Century: Challenges for Agricultural Economics, Ames, IA, August 1986.

Overshooting of Agricultural Prices. Paper presented at the International Agricultural Trade Research Consortium, Lake Tahoe, CA, July 1986.

Political Failure and the Design of U.S. Agricultural Policy. Paper presented at the convocation honoring Vice President James B. Kendrick, Jr., University of California at Davis, June 1986.

Alternative Trade and Macroeconomic Scenarios: Implications for U.S. Agriculture. Paper presented at the Farm Policy/Technology Conference, University of California, Agricultural Issues Center, June 1986.

Private Sector Responses to Target Prices and Deficiency Payments. Paper presented to Resources for the Future, Washington, DC, May 1986.

A Coherent Policy for U.S. Agriculture. Major address at the Conference on Food Policy and Politics: A Perspective on Agriculture and Development. Purdue University, West Lafayette, Indiana, May 1986.

Macroeconomics, Overshooting, and the Design of Public Policy. Major invited address to the Midwest Economic Association, Chicago, Illinois, March 1986.

The Effects of Monetary Policy on U.S. Agriculture. Invited paper presented at the annual meeting of the Australian Agricultural economics Association, February 1986.

Macroeconomic Relationships. Paper presented to Cooperative Extension Economic Leaders, San Francisco, CA, January 1986.

Macroeconomic Linkages to Agriculture. Paper presented to the Department of Economics, Michigan State University, January 1986.

Some Political Aspects of Macroeconomic Linkages with Agriculture. Paper presented at the American Economic Association Annual Meeting, New York, December 1985.

Macroeconomic Linkages, Taxes and Subsidies on the U.S. Agricultural Sector. Paper presented at the American Economic Association Annual Meeting, New York, December 1985.

The Food Marketing System: Relevance of Economic Efficiency Measures. Major invited address at the Conference on Economic Efficiency and Agriculture and Food Marketing; sponsored by the University of Florida, Farm Foundation and the Agricultural Marketing Service, U.S. Department of Agriculture. Arlington, Virginia, October 1985.

Instability in Agricultural Markets: The U.S. Experience. Major invited address to the International Association of Agricultural Economists, Malaga, Spain, August 1985.

Multimarket Efficiency Analysis. Paper presented at the London School of Economics, August 1985.

Distributional Effects of Agricultural Policies. Paper presented at Oxford University, August 1985.

A Comprehensive Framework for Analysis of Future Markets. Paper presented to the Chicago Mercantile Exchange, June 1985.

The Design of U.S. Food and Agricultural Policy. Major invited address to the U.S. Congressional Conference, Urban-American Stake in the National Farm Crisis. Washington, DC, April 1985.

Overshooting in Commodity Future Markets. Paper presented at the Department of Economics, University of Wisconsin, Madison, April 1985.

Multiple Effects of Exchange Rates on Import Demand. Paper presented to the U.S. Department of Agriculture, Economic Research Service, Washington, DC, March 1985.



Macroeconomics and U.S. Agricultural Policy. Major invited address to the American Enterprise Institute for Public Policy Research. Washington, DC, January 1985.

A Synthesis of Major Evaluations of Alternative Proposals for the 1985 Food Security Act. Major invited address at the National Center for Food and Agricultural Policy and National Agricultural Forum Conference, Policy Choices, 1985. Washington, DC, December 1984.

Agricultural Trade and Unstable Exchange Rate Movements. Paper presented to the Brookings Institution, Washington, DC, November 1984.

Monetary Reaction Functions and the income Link for Agricultural Export Demand. Paper presented to Resources for the Future, Washington, DC, October 1984.

New Designs for Funding Public Research in Agriculture. Paper presented at the Department of Agricultural Economics, Ohio State University, September 1984.

Food Margin Relationships: Fix- Versus Flex-Price Determinations. Paper presented at the Department of Economics, Iowa State University, September 1984.

The Relative Effectiveness of Agricultural Sector Versus Macroeconomic Policies. Paper presented at the American Agricultural Economics Association Annual Meeting, Cornell University, August 1984.

Short Run Nonneutrality and Dynamic Overshooting Paths. Paper presented at the U.S. Department of Agriculture, Economic Research Service, Washington, DC, August 1984.

Uncertain Economic Environments and Conditional Policies. Paper presented at the Giannini Foundation/Resources for the Future conference on Alternative Agriculture and Food Policies and the 1985 Farm Bill, Berkeley, CA, June 1984.

Review and Assessment of Alternative Agricultural Policy Proposals. Paper presented at the Giannini Foundation/Resources for the Future conference on Alternative Agriculture and Food Policies and the 1985 Farm Bill, Berkeley, CA, June 1984.

The Major Issues in Agricultural Public Policy Management. Paper presented to the Graduate School of Management, Yale University, May 1984.

Hedging Strategies for Grain Importing Countries. Paper presented to the Chicago Board of Trade, Chicago, IL, March 1984.

Regulation in Commodity Futures Markets. Major invited address to the American Enterprise Institute. Washington, DC, January 1984.

The Role of Agricultural Price Supports and Land Controls in Technological Adoption Under Uncertainty. Paper presented to the Department of Agricultural and Applied Economics, University of Minnesota, January 1984.

Post-Bayesian Statistical Inference. Paper presented to the Department of Statistics, Iowa State University, November 1983.

Expectation Patterns, Cost of Information, and the Role of Future Markets. Paper presented to the Department of Economics, University of Chicago, September 1983.

Agricultural Output and the Effectiveness of Government Policy. Paper presented at the American Agricultural Economics Association Annual Meeting, Purdue University, August 1983.

Equity and Efficiency in Agricultural Production Systems. Major invited address to the Plenary Session of the International Association of Agricultural Economists. Jakarta, Indonesia, 1982.

Political Economic Markets: PERTs and PESTs in Food and Agriculture. Keynote address to the American Agricultural Economics Association Annual Meetings. Logan, Utah, 1982.

Modeling Agriculture for Policy Analysis in the 1980s. Major invited address at a special symposium sponsored by the Federal Reserve Bank of Kansas City. September 1981.

Agriculture, Food, and the Government. Invited address to the American Economics Association Annual Meeting. New York, 1981.

Prospects and Limitations of Operations Research in Agricultural Policy Investigations. Major invited address at the Plenary Session of the International Operations Research Conference. Jerusalem, Israel, 1979.

Natural Resource Economics and Policy. Keynote address to the Farm Foundation Research Workshop, Natural Resource Economics and Policy. University of Massachusetts, Amherst, 1976.

### **OTHER INVITED SEMINAR PRESENTATIONS**

Agency for International Development (27)\*; Agricultural Development Council (4); American Agricultural Economics Association (34); American Agricultural Law Association (1); American Economics Association (11); American Enterprise Institute (2); American Finance Association (5); American Sheep Industry (2); American Statistical Association (9); American Water Resource Association (3); Applied Econometric Association Conference (2); Argentina Universities (9); Australian Agricultural Economics Society (5); Australian National University (3); Brown University (1); California Agricultural Trade Seminars (1); California Women for Agriculture, Los Angeles (2); Chicago Board of Trade (6); Citizens for a Sound Economy Foundation (2); Columbia University (2); Commodity Futures Trading Division of Economic Analysis (1); Commonwealth Club (2); Conference on Agricultural Economic Policy Reform in Egypt (1); Conference of Economywide Effects of Developed Country Agricultural Trade Policies (1); Econometric Society (North American, European, World) (11); Economics Branch, Agriculture Canada (15); European Agricultural Economics Association (1); Farm Credit Council (2); The Ford Foundation (6); Harvard Institute of Development (2); Harvard University (12); Heritage Foundation, Washington, DC (2); Illinois Agricultural Leadership Foundation (1); Institute of Electronics and Electronics Engineers Decision and Control Conferences (2); International Association of Agricultural Economists (6); International Monetary Fund (4); Iowa State University (9); League of Women Voters (Berkeley and Washington, DC) (5); London School of Economics (3); Massachusetts Institute of Technology (4); Melbourne University (3); Michigan State

University (2); Midwest Economic Association (2); Monash University (1); National Bureau of Economic Research (7) National Cotton Council of America (2); New York Pension Fund Association (2); North Carolina State University (6); Northern Illinois University (3); Oklahoma State University (1); Operations Research Society (5); Organization of Professional Employees (3); Princeton University (2); Purdue University (6); Regional Research Strategy Committees (9); Rotary Club of Berkeley (1); Soviet-American Symposium (1); Stanford University (4); State University of New York (2); Texas A&M University (2); The Institute of Management Sciences (4); Town Hall of California, Los Angeles (1); Trade Policy Research Center, United Kingdom (3); University of Adelaide (1); University of California, Berkeley (28); University of California, Davis (9); University of California, Santa Barbara (2); University of California, Los Angeles (4); University of Chicago (9); University of Florida (2); University of Georgia (1); University of Heidelberg (1); University of Illinois (3); University of Maryland (1); University of Massachusetts, Amherst (2); University of Minnesota (5); University of Missouri (3); University of Nebraska (1); University of New England (3); University of North Carolina (1); University of Pennsylvania (3); University of Prague (1); University of Rhode Island (1); University of Salsberg (1); University of Saskatchewan (1); University of Sydney (2); University of Western Australia (2); U.S. Department of Agriculture (15); Washington, DC, Economists Club (3); Western Economics Association (7); World Affairs Council (2); World Perspective Seminar (1); The World Bank (10); Yale University (3); Institute for Policy Reform (12).

\*Number of Presentations (Total: 428).

### **PUBLIC, UNIVERSITY AND PROFESSIONAL SERVICE**

Member, U.S. Trade Representative (USTR/USDA) advisory committee on WTO negotiations, 2005–2007

Member, Finance Committee, Pacific Graduate School of Psychology, 2003–

Member, Committee to increase student enrollment, Department of Agricultural and Resource Economics, University of California, Berkeley, 2002–

Member, Board of Visitors, Center for Science, Policy, and Outcomes, 2000–

Member, Board of Trustees, Pacific Graduate School of Psychology, 1999–

National Development Council, California State University, Fresno, 1998–

Member, Board of Directors, Lawrence Hall of Science, 1998–

Joint Policy Council on Agriculture and Higher Education, Committee on Cooperation in Education, 1997–

Columbia University, Columbia Earth Institute (CEI) Advisory Board, October 1997–

Graduate Group in Energy and Resources, University of California, Berkeley, 1996–

Campus Advisory Board, Lawrence Hall of Science, University of California, Berkeley, 1996–

Executive Committee, International and Area Studies Executive Committee, University of California, Berkeley, 1994–

Associate Director, Agricultural Experiment Station, University of California, Berkeley, 1994–2000

Director, Institute for Natural Resource Systems, University of California, Berkeley, 1994–2000

Berkeley Division, Academic Senate, Committee on University Extension, 1992– 1994

Member, Economic Discipline Board, Fulbright Scholarship Awards, 1989– 1993

Numerous Departmental and College-Level Committees, 1970–

Member, Committee to revise ANR's mission statement, University of California, 2003

Chair, Finance Committee, Pacific Graduate School of Psychology, 2002–03

---

Chair, Division of Agriculture and Natural Resources Reorganization Committee, University of California, 2002

Chair of the Electorate Nominating Committee for the AAAS Section on Social, Economic and Political Sciences, 2001–2002

Chair, Review Committee for the Dean of the School of Journalism, University of California, Berkeley, 2001

Member, Northwest Precinct Space Study Committee, University of California, Berkeley, 2000

Member, Geographic Information Service Advisory Council, University of California, Berkeley, 2000

Member, Fundraising Workgroup Committee, University of California, Berkeley, 2000

Student Deans' Council, University of California, Berkeley, 1994–2000

Division Chairs Council, University of California, Berkeley, 1994–2000

Council of Deans, University of California, Berkeley, 1994–2000

Chancellor's Advisory Committee on Biology, University of California, Berkeley, 1994–2000

Ex officio member, College of Natural Resources Advisory Board, University of California, Berkeley, 1994–2000

Executive Committee of Environmental Council, University of California, Berkeley, 1994–2000

Council of Deans and Directors, University of California, Systemwide, 1994–2000

College of Natural Resources Advisory Board, University of California, Berkeley, 1994–2000

College of Natural Resources Development Committee, University of California, Berkeley, 1994–2000

Cooperator, "Higher Education Collaboration Between the United States and the European Community," the Fund for the Improvement of Postsecondary Education (FIPSE), 1993–2000

Geographic Information Science Center's Advisory Council, University of California, Berkeley, 1999

Course Material Fees Committee, University of California, Berkeley, 1999

Search Advisory Committee for Assistant Vice President, DANR, 1999

Search Committee, Vice Chancellor University Relations, 1999

Nominating Committee of the Social, Economic, and Political Science, American Association for the Advancement of Science (AAAS). January, 1999

Search Committee, Vice Chancellor Capital Projects, 1998

Chair, Advisory Committee, Kearney Foundation for Soil Science, Division of Agricultural and Natural Resources, University of California, Berkeley, 1995

Member, Board for International Development Studies, Fletcher School of Law and Diplomacy, Tufts University, 1992–95

University Extension Committee, Berkeley Division, Academic Senate, University of California, Berkeley, 1993–94

Agricultural and Food Marketing Consortium Planning Committee, 1993–94

Chair, Search Committee for Chair of Slavic Center, University of California, Berkeley, 1993–94

Member of Advisory Board, International Center for Self-Governance, 1991–1994

University of California Systemwide Energy Research Advisory Committee, 1988–94

Member Capital Campaign 2001, Knowledge for the Future, Subgroup: Environment, Resources, and Ecology, 1993

College of Natural Resources Committee to Form International Institute for Natural Resource Systems, University of California, Berkeley, 1991–92

College of Natural Resources Internal Reorganization Committee, University of California, Berkeley, 1990–1992

---

Editor, Agricultural Management and Economics, Springer-Verlag, 1988–92  
 Board of Directors, Universitywide Energy Research Center, 1988–1992  
 Evaluation of World Bank Research Proposals (14 evaluations), 1979–1992  
 Chairman, Search Committee for Director of Soviet Studies, 1991  
 Agricultural Academy of Science-Soviet Union Delegation, 1990  
 Cofounder of the Institute for Policy Reform, Washington, DC, 1989  
 Founder of the Agency for International Development Research Fellow Program, 1989  
 Dean's Selection Committee for College of Natural Resources Technical Advisory Committee, 1989  
 Chairman and Member, Berkeley Campuswide Committee to Evaluate the Department of Economics and Related Economic Programs, 1988–1989  
 Advisory Committee, Environmental Protection Agency, Evaluation of Environmental Regulations on Agriculture, 1987–1989  
 Resources for the Future, National Center for Food and Agricultural Policy Task Force on Multilateral Trade Negotiations, 1988  
 U.S. Department of Agriculture, Task Force on Analytical Research Supporting the Trade Representatives Office, 1988  
 Member, Advisory Committee, Government Accounting Office on U.S. Agricultural Export Strategies, 1987–88  
 Departmental Faculty/Extension Coordination Committee, University of California, Berkeley, 1987–88  
 Chairman, Political Economy of Natural Resources Panel, 1987–88  
 U.S. Government Task Force on U.S. Agricultural Policy and Position in GATT Negotiations, 1987–88  
 Member, Evaluation of EPA Regulation on U.S. Agricultural Sector Committee, 1987–88  
 United States Negotiating Team for the OECD Communique on Agricultural Reform, May, 1987  
 United States Senate Panel on "1985 Farm Bill Revisited: Competitive Views," March, 1987  
 Council for Foreign Relations Task Force on Trade Policy Options for the United States, 1987  
 General Accounting Office Task Force on Alternative Public/Private Marketing Mechanisms for U.S. Food and Agriculture, 1987  
 U.S. Government Task Force on the Farm Credit System, 1987  
 Chairman and Member, School of Business Administration Planning Committee, University of California, Berkeley, 1986–87  
 Organizational Committee for Farm Policy-Technology Conference, Agricultural Issues Center, University of California at Davis, 1986  
 American Agricultural Economics Association Committee on Journal Publishing, 1986  
 Member, Search and Selection Committee for Vice President of Agriculture and Natural Resources, University of California Systemwide, 1985–86  
 Chairman, Strategic Review of Giannini Foundation, 1985–86  
 Member, Agricultural Policy Planning Committee, American Agricultural Economics Association, 1984–1986  
 Departmental Food and Agricultural Act Symposium Committee, University of California, Berkeley, 1984–1986  
 The American Agricultural Economics Association Board of Directors, ex officio, 1984–1986  
 Chairman, American Agricultural Economics Association, Outstanding Journal Article Committee, 1983–1986  
 Editor, American Journal of Agricultural Economics, 1983–1986  
 Member, Board of Directors, Giannini Foundation of Agricultural Economics, 1979–1986  
 Chairman, Executive Committee, Giannini Foundation, 1979–1986



Member, Planning Committee for Agriculture and Food Policy Evaluation, Resources for the Future, 1984–85

Member, Advisory Committee for the Design of the Agricultural Issues Center, University of California Systemwide, 1984–85

Member and Director, Agriculture Study Group, Commonwealth Club, 1983–1985

Chairman, Departmental Endowment Committee, University of California, Berkeley, 1979–1984

Chairman, Western Agricultural Economics Research Council, 1982–83

Member, Planning Committee, Berkeley Food Cooperative, 1980–1983

Vice Chairman, Western Agricultural Economics Research Council, 1981–82

American Agricultural Economics Association Publication of Enduring Quality Award Committee, 1981–82

Western Nutrition Center Planning Committee, 1980–1982

Joint Land Grant University/U.S. Department of Agriculture Committee on New Research Directions, 1979–1982

Coordination Board, Giannini Foundation, 1979–1982

Associate Editor, Journal of Dynamics and Control, 1978–1982

Associate Book Review Editor, Journal of the American Statistical Association, 1974–1982

Western Nutrition Center Coordinating Committee, 1980–81

Secretary, Western Agricultural Economics Research Council, 1980–81

Arab-American Council for Cultural and Economic Exchange, Egyptian Agricultural Development Committee, 1979–80

Editorial Board, American Journal of Agricultural Economics, 1977–1980

Agricultural Econometric Modeling and Forecasting Symposium Participant, 1973–1980

Chairman, Joint University-Governmental Symposium on Agricultural Sector Forecasting and Policy Evaluations, Washington, DC, 1979

National Bureau of Economic Research Workshop Participant, 1974–1979

Chairman, Research Evaluation Committee for Desert Research Institute, Israel, 1978

Academic Representative to U.S.-U.S.S.R. Agreement on Cooperation in Agricultural Economic Research and Information, 1977

Member, World Bank Committee on Research Quality Control, 1976–1977

Harvard University Executive Education Program Instructor, 1975–1977

Agricultural Development Council Workshop Participant, 1974–1977

Associate Editor, Journal of the American Statistical Association, 1973–1977

Member, Outstanding Ph.D. Dissertation Committee, American Agricultural Economics Association, 1974–1976

Ford Foundation Visiting Professor, Argentina, 1972

College Union Board of Directors, 1966–1972

Interfraternity Council Board, 1965–1967

University of California, Berkeley, Ad Hoc Review Committee for Tenure Appointments (19 appointments, 9 as Chair).

### EDITORIAL COLLABORATIONS

*Review of Agricultural Economics*, 1990–  
*Springer-Verlag*, 1988–  
*Review of Economic Studies*, 1987–  
*Economic Journal*, 1986–  
*Journal of Futures Markets*, 1986–  
*Review of Futures Markets*, 1986–

*Economic Development and Cultural Change*, 1985–  
*Journal of Economic Theory*, 1985–  
*Journal of Monetary Economics*, 1984–  
*Journal of Development Economics*, 1982–  
*Journal of Environmental Economics and Management*, 1981–  
*Journal of Economic Dynamics and Control*, 1978–  
*Resources and Energy*, 1978–  
*Australian Journal of Agricultural Economics*, 1977–  
*Decision Sciences*, 1977–  
*IEEE Transactions on Automatic Control*, 1977–  
*Journal of Economics and Business*, 1977–  
*Management Science*, 1977–  
*American Economic Review*, 1976–  
*Quarterly Journal of Economics*, 1976–  
*Journal of Finance*, 1975–  
*Econometrica*, 1974–  
*Review of Economics and Statistics*, 1974–  
*Journal of Econometrics*, 1973–  
*Journal of Political Economy*, 1973–  
*Journal of the American Statistical Association*, 1971–  
*American Journal of Agricultural Economics*, 1970–  
*Annals of Economic and Social Measurement*, 1974–1977

#### **AD HOC REVIEWING**

Agriculture Canada, 1991– , 1978–1982  
 Club of Paris, various governmental consulting groups, 1988–  
 U.S. Council of Economic Advisors, 1986–  
 U.S. General Accounting Office, 1983–  
 U.S. Congressional Budget Office, 1982–  
 American Enterprise Institute, 1981–  
 United States-Israeli Binational Agricultural Research and Development Fund (BARD), 1980–  
 World Bank, 1979–  
 National Science Foundation, 1976–  
 Giannini Foundation Monograph Series, 1971–  
 Intergovernmental Consulting Group on Indonesia, the Hague, 1989–1990

#### **PH.D. DIRECTORSHIPS**

Sixty-two Ph.D. theses in the areas of Natural Resource Damages; Agricultural Economics and Policy; Industrial Organization and Antitrust Analysis; Water Resources; Human Capital; Recreational Economics; Environmental Economics; Energy Policy; Public Policy; Managerial Economics; Adaptive Control; Econometrics; International Trade; Commodity Markets and Models; Governmental Food and Nutrition Policies; Operational Designs of Decision Support Systems; U.S. Livestock Feed Grain Sector; Agricultural Cycles; Futures Markets; Terms of Trade; Agricultural Land Prices and Agrarian Structure; Land Quality and Soil Conservation; Agricultural Credit Markets; New Institutional Economics and Transaction Costs; Political Economy; Multilateral Negotiations; Design of Governance Structures; Industrial Organization of Food Industry; Transitional Economies; Risk

Analytics; Health Economics, Political Power, Analytical Dimensions; Common Property Resources; Experimental Design; Statistical Methodologies.

### **RESEARCH GRANTS**

Agency for International Development, U.S. State Department (numerous)  
Agriculture Cooperative Service, U.S. Department of Agriculture  
Agriculture Research Service, U.S. Department of Agriculture (numerous)  
Center for Agricultural and Rural Development (numerous)  
Chicago Board of Trade  
Chicago Mercantile Exchange  
Consortium of US Commodity Futures Exchanges  
Economic Research Service, U.S. Department of Agriculture (numerous)  
Economics Branch, Agriculture Canada (numerous)  
Ford Foundation (numerous)  
France-Berkeley Fund  
Giannini Foundation (numerous)  
Harvard University Research Institute  
International Monetary Fund  
National Center for Food and Agricultural Policy (numerous)  
National Science Foundation (numerous)  
OECD, France  
Resources for the Future  
State of Iowa Coal Project  
U.S. Department of Agriculture (numerous)  
U.S. Trade Representatives Office (numerous)  
U.S. Environmental Protection Agency (numerous)  
University of California Systemwide Biotechnology Research and Education Program  
University of California Water Resource Center  
Western Human Nutrition Center, U.S. Department of Agriculture  
World Bank

### **GOVERNMENT CONSULTING AND NONACADEMIC POSITIONS**

Chairman, Board of Directors, OnPoint Analytics, 2004-  
Senior Consultant, CRA International, 2000-2006  
Board of Directors, Diversified Therapy Corporation, 1997-2005  
Chairman and Board of Directors, TriColor Line, Ltd., 1990-  
Board of Directors, Source for Automation, Inc., 1988-1996  
U.S. Department of Agriculture, 1975-  
Board of Directors, OnCure Technology (formerly US Cancer Care), 1998-2003  
Cofounder and Board of Directors, LECG, Inc., 1990-2000  
Board of Directors, U.S. Diagnostic Labs, 1994-99  
Council of Economic Advisors, 1993-94, 1986-88  
President and Board of Directors, Institute for Policy Reform, Washington, D.C., 1990-1994  
Nathan Associates, Incorporated, Washington, DC, 1990-1991  
Chief Economist, Agency for International Development, Washington, DC, 1988-1990  
U.S. Department of State, 1986-1990  
Ministry of Agriculture, England, 1987-88  
World Bank, 1983-1988, 1975-76



Gordon Rausser, Ph.D.  
Page 60 of 60

---

Bureau of Agricultural Economics, Australia, 1986–87  
Farm Credit Administration, 1986–87  
U.S. Office of Management and Budget, 1986–87  
Chicago Board of Trade, 1982–1986  
Ministry of Agriculture, Spain, 1985  
Chicago Mercantile Exchange, 1980–81  
Oakridge National Laboratories, Energy Division, Oakridge, Tennessee, 1978–1981  
Economics Branch, Agriculture Canada, 1977–1980  
U.S. Bureau of Mines, 1974–1976  
U.S. Office of Saline Water, 1973–1976  
National Science Foundation Environmental Project, University of Chicago, 1973–1975  
Manager, California Dairy and Truck Crop Farm, 1967–1973

### **INDUSTRY CONSULTING AND LITIGATION EXPERIENCE**

Consulting experience in complex litigation, antitrust, regulated industries, measurement of economic damages, economic feasibility studies, market analysis, econometric modeling, environmental damages, development of portfolio investment models, and the assessment of risk management frameworks.

# Exhibit C

## Four Year Testimony List of Gordon Rausser, Ph.D.



## GORDON C. RAUSSER

Senior Consultant

### EXPERT REPORTS, DEPOSITIONS, AND TESTIMONY (2006 – APRIL 2010)

*In Re: Rail Freight Fuel Surcharge Antitrust Litigation*  
Quinn Emanuel Urquhart Oliver & Hedges, LLP

- Expert Report

*Cephalon Labs, Inc., et al. v. Watson Pharmaceuticals, Inc., et al.*  
Frommer Lawrence & Haug LLP (2010)

- Expert Report

*In Re: Southeastern Milk Antitrust Litigation*  
Howrey LLP (2010)

- Expert Report

*In Re: Ready-Mixed Concrete Antitrust Litigation*  
Cohen & Malad, LLP (2008-2010)

- Expert Report
- Expert Declaration
- Trial Testimony

*SmithKline Beecham Corporation, et al. v. Apotex Corp.*  
Locke, Lord, Bissell & Liddell (2010)

- Expert Report

*Duramed Pharmaceuticals, Inc., v. Paddock Laboratories, Inc.*  
Frommer, Lawrence & Haug LLP (2010)

- Expert Report

*Harris Farms, Inc. v. Western Farm Service, et al.*  
Petrie, Dorfmeier & Morris, LLP (2009)

- Deposition

*Sanofi-Aventis U.S. LLC, Sanofi-Aventis, Debiopharm, S.A. v. Mayne Pharma Limited, Mayne, Pharma (USA) Inc, Hospira Australia PTY LTD., and Hospira, Inc.*  
Winston & Strawn, LLP (2009)

- Expert Declaration



*Untied States of America v. Cinergy Corporation, PSI Energy, Inc., and Cincinnati Gas & Electric Co.*  
Sidley Austin, LLP (2009)

- Expert Report

*Dey, L.P., and Dey, Inc. v. Sepracor, Inc.*  
Frommer, Lawrence & Haug LLP (2009)

- Expert Report

*Santa Clara Valley Water District v. Olin Corporation*  
Morgan, Lewis & Bockius, LLP (2009)

- Deposition

*Clyde Litchfield, et al. v. Onstott Dusters, Inc. et al.*  
McCormick, Barstow, Sheppard, Wayte & Carruth, LLP (2009)

- Expert Report
- Deposition

*Citgo Petroleum Corporation v. Ranger Enterprises, Inc.*  
Stahl Cowen Crowley Addis LLC (2009)

- Expert Report
- Deposition

*Keepseagle, et al. v. Thomas J. Vilsack, Secretary, The United States Department of Agriculture*  
United States Department of Justice, Civil Division (2009)

- Expert Report
- Deposition

*Santarus, Inc. and The Curators of the University of Missouri v. Par Pharmaceutical, Inc.*  
Arent Fox, LLP (2009)

- Expert Report
- Deposition
- Trial Testimony

*Asahi Kasei Pharma Corporation v. Cotherix, Inc.*  
Morgan, Lewis & Bockius, LLP (2009)

- Expert Report

*Sun Pharmaceutical Industries, Ltd. v. Eli Lilly and Company*  
Winston & Strawn, LLP (2009)

- Expert Report
- Deposition



*Frank K. Cooper Real Estate #1, Inc., et al. v. Cendant Corporation and Century 21 Real Estate Corporation*  
Zwerling, Schachter & Zwerling (2009)

- Expert Report
- Expert Declaration
- Deposition

*Class v. Smithkline Beecham Corporation D/B/A Glaxosmithkline plc*  
Miller Law, LLC (2008-2009)

- Expert Declaration
- Deposition

*Forest Laboratories, Inc., et al. v. Caraco Pharmaceutical Laboratories, Ltd.*  
Winston & Strawn, LLP (2008-2009)

- Expert Report
- Deposition

*Lisa Reed, et al., v. Advocate Health Care, et al. and Janet Schultz, et al., v. Evanston Northwestern Healthcare, et al.*  
Cohen, Milstein, Hausfeld & Toll PLLC (2008-2009)

- Expert Declarations
- Deposition

*Purdue Pharma Products L.P., Napp Pharmaceutical Group, Ltd., et al., v. Par Pharmaceutical, Inc. and Par Pharmaceutical Companies, Inc.*  
Frommer, Lawrence & Haug LLP (2008-2009)

- Expert Report
- Deposition
- Trial Testimony

*State of Oklahoma, et al. v. Tyson Foods, Inc., et al.*  
Ryan, Whaley & Coldiron (2008-2009)

- Expert Report
- Expert Declaration
- Deposition
- Trial Testimony



*Novo Nordisk A/S and Novo Nordisk, Inc. v. Caraco Pharmaceutical Laboratories, Ltd.*  
Winston & Strawn, LLP (2008)

- Expert Declaration
- Deposition

*Pacific Tomato Growers, Ltd. v. Agricola La Primavera, S.A., de C.V. and Kaliroy Produce, Inc.*  
K&L Gates (2008)

- Deposition
- Trial Testimony

*Rick Love, M.D., Joe Frank Smith, M.D., et al. v. Blue Cross and Blue Shield of Arizona, Inc., et al.*  
Whatley Drake & Kallas (2008)

- Expert Report
- Expert Declaration
- Deposition

*Intervet, Inc., v. Merial, Ltd. and Merial SAS*  
Alston & Bird LLP (2008)

- Expert Report
- Deposition

*James Weiss, Patricia Vogt, et al. v. AstraZeneca Pharmaceuticals LP and Zeneca, Inc.*  
Sidley Austin, LLP (2008)

- Expert Declaration
- Hearing Testimony
- Deposition

*Novartis Corporation, et al. v. Lupin Ltd.*  
Frommer, Lawrence & Haug LLP (2008)

- Expert Report
- Deposition

*Auerbach Acquisition Associates, Inc. v. Daily (Shooker)*  
Morgan Lewis & Bockius, LLP (2005-2008)

- Expert Deposition
- Trial Testimony

*Olivera v. Western Ag Aviation*  
Parish & Small (2008)

- Trial Testimony



*Fidelity High Tech v. United States*

United States Department of Justice, Tax Division (2008)

- Expert Report
- Trial Testimony
- Deposition

*Abbott v. Sandoz*

Locke, Lord, Bissell & Liddell, LLP (2008)

- Expert Report
- Deposition

*Robert Scher, M.D., et al., v. Oxford Health Plans, Inc. and Oxford Health Plans of New York, Inc.*  
Whatley Drake & Kallas (2008)

- Expert Declaration

*Syngenta v. Monsanto*

Howrey & Simon (2006, 2008)

- Expert Report
- Deposition

*John Johnson and Robert Charles Burden, et al. Consolidated with James Alford, III et al. v. Big Lots Stores, Inc.*

McCranie, Sistrunk, Anzelmo, Hardy, Maxwell & McDaniel (2008)

- Expert Reports
- Trial Testimony
- Deposition

*People of the State of California v. Universal Life Resources, et al.*

Lerach, Coughlin, Stoia, Geller, Rudman & Robbins LLP (2008)

- Expert Declaration

*Houlding, et al. v. Grouleff Aviation, Inc.*

Petrie, Dorfmeier & Morris (2008)

- Trial Testimony

*Kish, et al. v. SunTrust Banks, Inc. and SunTrust Bank*

Doffermeyer Shields Canfield Knowles & Devine, LLC (2007-2008)

- Expert Declaration
- Expert Report
- Deposition



*Morelock Enterprises, Inc. v. Weyerhaeuser Company*  
Thelen, Reid & Priest (2004-2008)

- Expert Reports
- Depositions
- Trial Testimony

*Shire Laboratories, Inc. (related cases involving Rx Adderall)*  
Covington & Burling (2005-2007)

- Expert Report
- Expert Declaration

*McDermott International, Inc., v. Aon Corporation and Aon Risk Service of Texas, Inc.*  
Bracewell & Guliani LLP (2007)

- Expert Report

*Salon One, LLC, et al., v. Visa USA, Inc., Visa International Service Association, Cardservice International, Inc., et al.*  
Arkin & Glovsky (2007)

- Expert Declaration

*Fidelity International Currency Advisor A Fund, LLC v. United States*  
United States Department of Justice, Tax Division (2007)

- Expert Reports
- Deposition

*In re: Calpine Corporation, et al. (Claim of Gas Transmission Northwest)*  
Elrod PLLC (2007)

- Expert Affidavit

*S&F Farms v. Dompe Supply Company*  
Petrie, Dorfmeier & Morris (2007)

- Deposition

*Lumos & Associates, Inc., v. A&H Insurance, Inc., et al.*  
Levery Law (2007)

- Expert Report

*Ramsay Highlander, Inc. v. Fresh Express, Inc., et al.*  
Townsend and Townsend and Crew (2007)

- Deposition

*Solutia, Inc. v. Decatur Energy Center, LLC.*  
Curtis, Mallet-Prevost, Colt & Mosle, LLP (2007)

- Expert Reports





*Dingle, et al. v. Halliburton Company*

Lopez, Hodes, Restaino, Milman & Skikos (2007)

- Expert Declaration
- Expert Report

*Village Voice v. Marsh McLennan, et al.*

Morgan, Lewis and Bockius (2007)

- Expert Declaration

*In re: Southern Minnesota Beet Sugar Cooperative v. Imperial Sugar Company*

Baker Botts, LLP (2006-2007)

- Expert Report
- Deposition
- Arbitration Testimony

*Schott v. DHWC*

Wilkins, Drolshagen & Czesinski, LLP (2006)

- Deposition

*In Re: Insurance Brokerage Antitrust Litigation*

Miller Faucher and Cafferty (2006)

- Expert Declarations
- Deposition

*In re: High Pressure Laminate Antitrust Litigation*

The Furth Firm (2003-2006)

- Expert Report
- Deposition
- Trial Testimony

*Strain Orchards v. Sipcam Agro, USA, Inc.*

Kremser & Howard (2006)

- Deposition

# **EXHIBIT F**

Confidential

1

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

CONFIDENTIAL

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY

Case No: 2:07CV6039

-----  
DARLERY FRANCO, individually and  
On Behalf of All Others Similarly  
Situated,

Plaintiffs,

-against-

CONNECTICUT GENERAL LIFE INSURANCE  
CO., CIGNA CORPORATION, and  
CIGNA HEALTH CORPORATION,

Defendants.  
-----

DATE: May 17, 2010  
TIME: 9:15 a.m.

CONFIDENTIAL

Videotape deposition of STEPHEN FOREMAN,  
taken by and before JOYCE SILVER, a Certified  
Shorthand Reporter and Notary Public of the State  
of New York, held at the office of WHATLEY, DRAKE &  
KALLAS, LLC, 1540 Broadway Avenue, New York, New  
York.

Job No. NJ258465

Confidential

44

1 STEPHEN FOREMAN

2 But answer if you can.

3 A. Applying the facts to the law, I can't  
4 find any individual issues in this case. So, I mean,  
5 it does seem to me that a rational legal conclusion  
6 would provide that class issues -- classwide issues  
7 predominate, but that ultimately is a matter for the  
8 judge to decide.

9 Q. Now you indicated that one of the things  
10 you looked at was if it is established that the high  
11 low screen affects the percentiles that are used in  
12 the UCR; is that fair?

13 A. That's fair.

14 Q. Did you do any work to determine whether  
15 the high low screens affect the percentiles used in  
16 Ingenix UCR?

17 A. Two levels to that question. First of  
18 all, before looking at the actual data, Dr. Siskin  
19 noted that he believed that the high low screen could  
20 and does reduce percentile values. In order to  
21 independently look at that, I did a simulation just  
22 for illustrative purposes.

23 Ultimately, with all of these, we really  
24 need to deal with the data and look at what's  
25 actually happened using that data. So the reason I

Confidential

45

1 STEPHEN FOREMAN

2 said "if" was that to do this right, it should be  
3 fair, open, transparent, and we can actually go to  
4 the data and test and look at and see what happened  
5 when the high low screen was applied, for example,  
6 and that should be done.

7 Q. You said "it should be done."

8 Is it fair to say that you haven't done  
9 it?

10 A. I have not done it yet.

11 Q. Do you know if Dr. Siskin did it?

12 MS. KALLAS: Objection.

13 You could answer.

14 MR. BERGER: Dr. Siskin did what?

15 Q. Do you know if Dr. Siskin reviewed the  
16 data, specific data to determine if a high low screen  
17 was applied?

18 A. I have reviewed his prior reports, and  
19 I've reviewed his report in this matter, and that is  
20 not indicated in his report. Can I conclude that he  
21 didn't? No, but it's not in the report, so it did  
22 not seem to me that he's done that.

23 Q. Have you reviewed the transcripts from  
24 Dr. Siskind's testimony given last week?

25 A. I have.

Confidential

99

1 STEPHEN FOREMAN

2 the NYAG, FAIR Health, Syracuse University or the New  
3 Jersey Medical Society, outside of obviously the work  
4 you've done as an expert in this litigation?

5 A. No, I am not.

6 Q. I want to talk again about Exhibit 5, a  
7 couple of follow-up questions.

8 Is this spreadsheet being offered to  
9 support the opinions that are part of your class cert  
10 expert reports in the CIGNA and Aetna matters?

11 A. No, it is not.

12 Q. Okay. Then why did you create this  
13 spreadsheet?

14 A. In reviewing the rebuttal or the  
15 responsive opinions of defendants' experts, there  
16 were statements made that there could not possibly be  
17 downward bias in the Ingenix data. There were  
18 statements made that the Ingenix data might be higher  
19 than actual 80th billed, I believe, and I was -- none  
20 of those statements was based on a real look at the  
21 data, and sort of it's my basic view that we ought to  
22 be looking at the data here. We ought to be doing as  
23 much as we can to be open and transparent and look at  
24 what's happening here and try to come to a fair,  
25 accurate and honest assessment of what's really going

Confidential

111

1 STEPHEN FOREMAN

2 like in a "but for" world where the data collection  
3 represented the universe of all billed charged data  
4 and where the processing would not change the  
5 percentiles.

6 Q. Are you assuming that a "but for" UCR  
7 would be higher or lower than the, for example,  
8 Ingenix PHCS percentiles?

9 A. There are two parts to the answer to  
10 that. In the first instance for purposes of looking  
11 at damages or impact, there is no -- that assumption  
12 would not be part of it. It would be important to  
13 actually do the data work.

14 In the second part of it, is there some  
15 reason to believe that there might exist downward  
16 bias in the Ingenix percentiles? A number of the  
17 processes that Ingenix engages in provide some basis  
18 for inquiry in that respect. They provide some  
19 grounds for belief that it might be happening, so it  
20 would justify moving to the next step to do the data  
21 analysis on it.

22 Q. So if I understand your answer, you  
23 believe that there's a -- there may be a downward  
24 bias, but you have not looked at the data to conclude  
25 that there is a systematic downward bias; is that

Confidential

112

1 STEPHEN FOREMAN

2 correct?

3 A. Let me separate it out. The shortest  
4 answer to that is yes. Basically, the things like  
5 the high low screen, there may be other processes  
6 that are involved with the data that haven't been  
7 discussed. The way that the entire MDR product is  
8 produced by combining CPT codes all suggest that  
9 there is the potential for downward bias that should  
10 be investigated.

11 Q. But you haven't done the investigation to  
12 date?

13 A. That's correct, I have not done that  
14 investigation.

15 Q. Would you agree with me that it is a --  
16 it is a patient's health plan that defines his or her  
17 out-of-network benefits and how such benefits will be  
18 reimbursed?

19 A. Yes, I would.

20 Q. Okay. And it is the contract and the  
21 specific terms of the health plan -- the health plan  
22 is the contract between the member and the insurance  
23 company. Correct?

24 A. That's correct.

25 Q. Okay. And it's the specific plan



Confidential

125

1 STEPHEN FOREMAN

2 those contract provisions?

3 A. No, I'm not.

4 Q. Now in the third bullet point, which is  
5 the first bullet point on page 3, you refer to  
6 "reimbursement limits by defendant using PHCS and MDR  
7 and other related reimbursement methods."

8 Do you see that?

9 A. I do see that.

10 Q. What are you referring to when you say  
11 "other related reimbursement methods"?

12 A. I am referring to practices like  
13 reimbursement for out-of-network services based on a  
14 percentage of Medicare.

15 Q. Are you referring to anything else?

16 A. To the extent that there might be other  
17 systems that would provide for reimbursement for  
18 services where the contract called for usual,  
19 customary and reasonable, to the extent that there  
20 would be other types of reimbursement mechanisms that  
21 would sort of formulaically provide reimbursement  
22 that's not understood that way that would be subsumed  
23 by that language.

24 Q. Sitting here today, are you aware of any  
25 other such systems, other than Medicare-based

Confidential

126

1 STEPHEN FOREMAN

2 reimbursement?

3 A. With regard to CIGNA or otherwise?

4 Q. With -- with regard to CIGNA or Aetna.

5 A. No, I'm not.

6 Q. Okay. And so presumably your report  
7 doesn't analyze the effects of what you determine as  
8 the other related reimbursement methods. Is that  
9 fair?

10 A. The report looks at whether or not it is  
11 possible to do an evaluation of the difference  
12 between UCR and what's paid. It doesn't analyze any  
13 particular methodology in that sense, no.

14 Q. You state that the use of PHCS, MDR and  
15 these other reimbursement methods did not and do not  
16 provide for reimbursement of usual, customary and  
17 reasonable charges or reasonable and customary  
18 charges for the same or similar services in the  
19 community.

20 What is the basis for that statement?

21 A. I believe my statement -- are we in the  
22 third bullet here?

23 Q. We're looking at the first full bullet on  
24 page 3.

25 A. The bullet states that "application of

Confidential

127

1 STEPHEN FOREMAN

2 billed charge percentile reimbursements by defendant  
3 using PHCS and MDR and other related reimbursement  
4 method that reimbursement consumers and providers at  
5 or below percentile billed charge levels did not and  
6 do not provide."

7 So to the extent that a percentile would  
8 be biassed downward, and the UCR system provided for  
9 an honest, true billed percentile level, that would  
10 be the case, that it would under reimburse.

11 Q. Have you concluded that a percentile is  
12 biassed downward?

13 MR. BERGER: Object to the form of the  
14 question. What do you mean by "a percentile"?

15 Q. If you don't understand what I'm  
16 referring to, please let me know.

17 A. I have not evaluated Ingenix's  
18 percentiles for that purpose of determining that they  
19 are biassed downward. As discussed this morning, and  
20 in the report, there is the potential for that, that  
21 can be investigated and should be investigated. The  
22 damage methodology that I propose here would  
23 incorporate that.

24 Q. Next you refer to "reasonable and  
25 customary charges for the same or similar services in

Confidential

152

1 STEPHEN FOREMAN

2 Q. Okay. And, again, you mentioned the  
3 potential to injure all plaintiffs?

4 A. Yes, I did.

5 Q. Can you elaborate on that potential for  
6 me, please?

7 A. Yes, I can.

8 At the point in the past when class  
9 members were in the position of determining whether  
10 or not to seek medical care before they actually  
11 received it, they all had odds of having their  
12 reimbursement reduced, if that reduction was  
13 improper. They faced the potential for adverse  
14 impact, and before receiving medical care services,  
15 consumers would not generally be in the position to  
16 understand whether or not that might impact them or  
17 not.

18 Q. So this paragraph refers to the position  
19 of a member before they seek medical care?

20 A. In the past.

21 Q. In the past? So this paragraph --

22 A. That's correct.

23 Q. -- is not referring to whether or not an  
24 individual patient was actually paid less than what  
25 you've called the "but for" UCR; is that correct?

Confidential

153

1 STEPHEN FOREMAN

2 A. That's correct.

3 Q. Did you review any -- strike that.

4 Would it matter to you if information  
5 regarding the UCR rates that were to be applied for a  
6 procedure for a patient were available to a member  
7 before having the procedures? Would that affect your  
8 opinion?

9 A. If that information were accurate based  
10 on an accurate percentile data, it might. But to the  
11 extent that the information provided as part of that  
12 process would be based on the inaccurate data  
13 profiling, it wouldn't.

14 Q. How would a consumer who had  
15 out-of-network benefits but did not use them be  
16 impacted by what you've termed the past use of  
17 inaccurate percentile data?

18 A. It's my understanding that those  
19 consumers wouldn't be part of this class.

20 Q. How would you quantify the damages for a  
21 member who or -- strike that.

22 How would you quantify the damages for a  
23 consumer as you've identified it as part of the class  
24 in the bullet point at the bottom of 3 carrying on  
25 to 4?

Confidential

154

1 STEPHEN FOREMAN

2 A.

3 MS. KALLAS: Are you talking about the  
4 "as a result" sentence?

5 MR. MORETTINI: Yes.

6 A. In terms of the a priori potential in the  
7 past for being under-reimbursed in the carryover  
8 paragraph, that language?

9 Q. Yes.

10 A. I have not calculated damages based on  
11 that, and the proposed calculation would not contain  
12 a value for that.

13 Q. Looking at the next paragraph, bullet  
14 point on page 4, it's the first bullet point on page  
15 4, it indicates that the classes -- your opinion that  
16 "the classes suffered common impact from past use of  
17 inaccurate percentile data because past payment by  
18 insurance, health insurance firms including defendant  
19 that used improper bill charge percentile mechanisms  
20 were applied to process all provider claims and had  
21 the same potential to injure all providers who were  
22 paid amounts lower than they would have been paid  
23 'but for' the improper percentile mechanisms."

24 Did I read that correctly?

25 A. You read that correctly.

Confidential

155

1 STEPHEN FOREMAN

2 Q. And again, this is referring to the  
3 potential effect that it could have, not the actual  
4 effect that it did have?

5 A. That's correct.

6 Q. And, again, you did not do a damages  
7 model in connection with this paragraph?

8 A. That's correct.

9 Q. My understanding is that your discussion  
10 of common impact is based on the potential impact it  
11 may have on a consumer or a provider who would go --  
12 who may go to use out-of-network benefits. Is that  
13 fair?

14 A. That's correct. In addition, or stated  
15 another way, the process that was constructed was  
16 applied to adjudicate all claims. To the extent that  
17 the process was flawed, it would have adjudicated  
18 every claim in that way.

19 Q. And you recognize, I believe, that from  
20 case to case the actual reimbursement percentile  
21 level may be too high for some members and too low as  
22 compared to what you called the "but for" UCR?

23 A. For this class, in the future, in the  
24 past?

25 Q. For any member, any patient.

Confidential

156

1 STEPHEN FOREMAN

2 MR. BERGER: I'll object to the form.  
3 I'm not -- if you're going to say for any member, any  
4 patient, I think that's unclear what you're talking  
5 about.

6 Q. Do you understand that, Dr. Foreman?

7 A. I've read the reports by defendants'  
8 experts who say sometimes -- if you did this  
9 correctly, put that in quotes, or did it without the  
10 processes that are in place, sometimes UCR would go  
11 up, sometimes it would go down, and sometimes it  
12 would be the same. Does the question refer to that  
13 concept?

14 Q. Yes. And you would agree that the value  
15 provided by what you determined as the "but for" UCR  
16 may in some instances be higher or lower than the  
17 actual Ingenix PHCS or MDR database?

18 A. To the extent that we're looking at past  
19 damages, it's my understanding that the class is  
20 defined as people for which billed charge exceeded  
21 allowed and that the allowed was improperly  
22 calculated, and so from that standpoint,  
23 mathematically, you know, my vision of that is that  
24 people would either have been damaged in a greater or  
25 lesser amount or would have zero damages.



Confidential

177

1 STEPHEN FOREMAN

2 collected is representative by looking at all billed  
3 charge data as you suggest is necessary?

4 A. I think as noted in the New York Attorney  
5 General report, the New York Attorney General project  
6 for a limited range of CPT codes took a first attempt  
7 at doing that. That was a preliminary investigation.  
8 The findings prompted a subpoena to obtain all health  
9 insurer bill charge data for those CPT codes in New  
10 York that were the subject of the preliminary  
11 investigation. So that project started that process.  
12 I myself do not have all billed charge data for --  
13 from any area, from any insurer.

14 Q. Just breaking that down --

15 MS. KALLAS: Are you done with your  
16 answer?

17 A. I'm sorry.

18 Q. I'm sorry, go ahead.

19 A. In order to do all of this right, it  
20 would be important to start out with that in mind, at  
21 least for a range of CPT codes that might provide  
22 coverage for a substantial portion of the claims.

23 Q. So just breaking that done, it's fair to  
24 say that you yourself have not done the analysis by  
25 looking at bill charge data as to whether or not the

Confidential

178

1 STEPHEN FOREMAN

2 Ingenix PHCS or MDR data is a representative -- is a  
3 representative sample?

4 A. For purposes of this report, I have not  
5 done such an analysis, that's correct.

6 Q. And you reference the NYAG report in an  
7 analysis done by the New York Attorney General.

8 Is your -- the basis for your  
9 understanding that the Ingenix PHCS and MDR databases  
10 are not representative -- are not representative, the  
11 opinions and the conclusions reached in the NYAG  
12 report?

13 A. No, I'm not sure I can recall exactly  
14 what the NYAG said about representativeness. The  
15 basis for my independent opinion on that is that in  
16 order for the contributed data to be representative,  
17 one would need to undertake specific analysis in  
18 order to ascertain whether or not the data that were  
19 obtained were not -- were representative.

20 Q. And to be clear, you haven't done that  
21 analysis?

22 A. For purposes of this report, I have not  
23 done that analysis.

24 Q. Have you done this analysis for any  
25 purpose?

Confidential

264

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

CONFIDENTIAL

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY

Case No: 2:07CV6039

-----

DARLERY FRANCO, individually and  
On Behalf of All Others Similarly  
Situated,

Plaintiffs,

-against-

CONNECTICUT GENERAL LIFE INSURANCE  
CO., CIGNA CORPORATION, and  
CIGNA HEALTH CORPORATION,

Defendants.

-----

DATE: May 18, 2010

TIME: 8:35 a.m.

VOLUME II

Videotape deposition of STEPHEN FOREMAN,  
taken by and before JOYCE SILVER, a Certified  
Shorthand Reporter and Notary Public of the State of  
New York, held at the office of WHATLEY, DRAKE &  
KALLAS, LLC, 1540 Broadway Avenue, New York, New  
York.

Job No. NJ258467

Confidential

329

1 Foreman - direct

2 Q. And -- thank you.

3 And when you say that they're useful  
4 insights, you mean they're useful insights for  
5 purposes of providing an opinion in this case?

6 A. They're useful insights into contributing  
7 to understanding and knowledge base.

8 Q. And you --

9 A. To the extent that education and  
10 knowledge base works its way into everything you do,  
11 yes, to that extent.

12 Q. You're relying on your education and  
13 knowledge base in rendering an opinion in this case.  
14 Correct?

15 A. Correct.

16 Q. And are you relying on your work in  
17 connection with FAIR Health and Syracuse as a  
18 credential in this case?

19 A. I am.

20 Q. Are you relying on your work for FAIR  
21 Health, New York Attorney General, or Syracuse in any  
22 other way?

23 MS. KALLAS: Objection. Vague. Answer  
24 if you can.

25 A. No, I'm not.

Confidential

330

1 Foreman - direct

2 Q. Are you relying on any of the work plans,  
3 work product, or data discussed in connection with  
4 Syracuse or FAIR Health in providing an opinion in  
5 this case?

6 A. No, I'm not.

7 Q. Dr. Foreman, I believe you testified  
8 yesterday that you estimated that you spent around  
9 150 hours working on this case in the month of April.  
10 Is that an accurate estimate sitting here today?

11 MS. KALLAS: Objection. You're asking a  
12 question he already answered. If the witness  
13 remembers exactly what he estimated yesterday, he can  
14 answer.

15 A. I mean, I honestly can't remember the  
16 specific number from yesterday. As I sit here, it  
17 seems like an accurate estimate. I spent a lot of  
18 time on the matter in April.

19 Q. And what did you spend your time doing in  
20 the month of April?

21 A. Didn't I answer that yesterday? Again --  
22 you know, again, during April -- I guess I didn't  
23 talk about that yesterday.

24 The initial report in this matter was  
25 filed in early April, so I would have done work in

Confidential

367

1 Foreman - direct

2 correspondence between counsel concerning the data,  
3 the ACAS data?

4 A. No, I have not.

5 Q. In your responsive report, Foreman  
6 Exhibit 4, there are two exhibits attached to the end  
7 of the report. Exhibit A, which says damage  
8 calculation for UCR cannot be established, and  
9 Exhibit B, which says example of damage calculation.  
10 Do you see those two exhibits?

11 A. I do.

12 Q. Are these two exhibits based on Aetna's  
13 ACAS claim data?

14 A. They are.

15 Q. Did you personally perform the analysis  
16 of Aetna's ACAS data underlying Exhibit A?

17 A. For Exhibit A, I personally generated the  
18 table. And the description of that process, I  
19 believe, is contained in the body of the report.  
20 This is an illustration. I don't think I'd  
21 characterize it as an analysis, but this is an  
22 example of -- excuse me -- of for those instances  
23 where the court might find that there -- there isn't  
24 a percentile value that can be used, how you could  
25 generate a damage estimate or damage award that would

Confidential

389

1 Foreman - direct

2 include in the report in order to show in a clear,  
3 concise way how one would approach this. It's in the  
4 report. It is what it is in that respect. If you're  
5 asking me are there, you know, refinements that could  
6 be made to it, I think I just talked about that.

7 Q. Sitting here today, have you made any of  
8 those refinements?

9 A. Not yet.

10 Q. So sitting here today, this is the only  
11 version of this but for UCR model that you have in  
12 this case. Correct?

13 A. Once again, this is not even the -- a  
14 version of a model. This is an illustration of an  
15 approach that when the case moves forward can be used  
16 in order to develop a flaw model and to apply it to  
17 the health insurance claims that have been submitted  
18 in the past for Aetna in this case and, you know, for  
19 other companies.

20 Q. So this is the best illustration of a but  
21 for UCR damages model that you have at this point?

22 A. It is the illustration that's in here.  
23 The only.

24 Q. Thank you. Is it your opinion that the  
25 but for UCR rate can be calculated using Aetna's ACAS

Confidential

399

1 Foreman - direct

2 in"?

3 A. Yes. And, in fact, three lines before  
4 that actually pertain to something I said earlier.  
5 From this he is dealing with technical component and  
6 office component where it says "line item modifier 1  
7 IM," and then the line item "place of service in" is  
8 11, 12 and 22 and that's a place-of-service code,  
9 from my experience, that relates to a physician  
10 office or a hospital. And it looks like he included  
11 it there. Again, I'm not an expert in Minitab  
12 programming, but it does look like he included it in  
13 rather than out.

14 Q. Do you know why he included these three  
15 place-of-service codes, 11, 12 and 22?

16 A. He did not discuss that in detail with  
17 me. It was the intent of the exercise to do a but  
18 for 80th percentile for physician payment. To the  
19 extent that this includes physician office and  
20 hospital, that would be a broadly inclusive way of  
21 doing that.

22 Q. Is it fair to say that while you have a  
23 general understanding of how the but for UCR rates  
24 were created, as to the details, those would be  
25 questions better answered by Mr. Cohen?



Confidential

400

1 Foreman - direct

2 MS. KALLAS: Objection, mischaracterizes  
3 the testimony. You could answer.

4 A. I think for purposes of the illustration,  
5 these items showed the good faith way that the  
6 illustration was put together. They explain it. To  
7 the extent that I need to obtain more information to  
8 get into the details of the programming, I could do  
9 that in supplement.

10 In truth, the purposes of this was for an  
11 illustration and not to provide perfection in the way  
12 of a damage model. So in the way that's approached  
13 is explained in the opinion itself, and I believe  
14 that that description speaks for itself the way it's  
15 written. So I think I would be the person you would  
16 ask to get greater clarification if you needed it.

17 Q. If I asked for greater clarification from  
18 you about the way in which the but for UCR rates were  
19 calculated for Exhibit B, would you then turn to Mr.  
20 Cohen and ask him the same questions?

21 A. I would.

22 Q. Dr. Foreman, there are a couple of  
23 references in your report to adjustments or  
24 refinements that need to be made to the model -- the  
25 illustration, excuse me, reflected in Exhibit B. Can

Confidential

401

1 Foreman - direct

2 you tell me what those are?

3 MS. KALLAS: I am just going to object.

4 Perhaps you can point the witness to where you're  
5 referring to in his report?

6 MR. SIGLER: Sure.

7 Q. Footnote 35 on page 29 of your report  
8 says, "The illustration will be further refined and  
9 tested before it is implemented."

10 First, I guess, are you of the view that  
11 the illustration reflected on Exhibit B needs to be  
12 refined and tested before it is implemented?

13 A. I think, as I said before, and very  
14 specifically in relationship to this language, this  
15 is an illustration that is simple and tries to be  
16 simple and clear, provides indication of how this  
17 could occur. There are a number of ways that it  
18 could be made better. As one moves from an  
19 illustration to a full damages model, I believe I  
20 talked before about adding to this an analysis of  
21 specialty and provider type being more clear about  
22 modifiers. Even the place of service that you talked  
23 about a minute ago in your question would be  
24 something to think through in connection with that.

25 In addition, I would probably run this

Confidential

402

1 Foreman - direct  
2 model when it's fully developed in more than one  
3 processing system. I would probably run it in SAS as  
4 well as Minitab, for example, or I might run it in  
5 SPSS and in SAS. Those are two types of statistical  
6 processing systems that are fairly widely accepted in  
7 the industry by econometricians and statisticians.

8 So the reasons for the specification here  
9 in footnote 35 is that this is for purposes of  
10 illustration. The attempt is to be simple and clear.  
11 And as the full damage model is developed, that  
12 further refinements that more directly provide a but  
13 for scenario would be added, tested, finalized.

14 Q. Apart from the examples you just gave, do  
15 you have anything else in mind with respect to  
16 refinements or adjustments to the illustration  
17 reflected in Exhibit B?

18 A. I think I've talked about physicians,  
19 provider type, specialty type. I have talked about  
20 modifiers. There may be ways to do better in terms  
21 of geography and I think that's mentioned in here in  
22 terms of the geozip.

23 To the extent that we don't have full and  
24 complete data from all health insurers, there may be  
25 ways through a surveying or looking at certain

Confidential

403

1 Foreman - direct  
2 geographic areas where the contributed data represent  
3 a great proportion of claims. There may be ways to  
4 do better on the representativeness issue. So I  
5 wouldn't want to be restrictive right now in terms of  
6 how to make this damage model as accurate and  
7 scientific as possible.

8 By the same token, I would want to  
9 produce this in a way that would be clear so that  
10 everyone could understand it. And, obviously, as I'm  
11 sure in any proceeding like this, it's the one  
12 benefit of it, I mean it would be fully open,  
13 transparent, open to test verification by everybody.

14 Q. To the extent a but for UCR amount can be  
15 used to determine damages, which I believe you said  
16 could be done earlier, can it also be used to  
17 determine the impact on a particular class member  
18 claim?

19 MS. KALLAS: Objection.

20 A. There's a distinction between damage and  
21 impact. This methodology would be used to develop  
22 the damage amount.

23 In terms of impact, as I think I've  
24 described in my reports, the UCR system using  
25 percentile data impacts all class members to the

Confidential

404

1 Foreman - direct

2 extent that there wouldn't be enough data to provide  
3 a percentile amount and billed charge.

4 In fact, if the judge were to determine  
5 that the proper way to reimburse is billed charge  
6 based on the UCR language, you know, Exhibit A would  
7 be the approach that would be used to assess damages  
8 for all class members.

9 How are we on time? Where are you on  
10 your questioning here? Do you want to finish this  
11 line?

12 Q. Give me a few more minutes, unless you  
13 need a break.

14 A. I'm close.

15 Q. Tell me when you need a break.

16 A. Well, when you finish this line of  
17 questioning, let's take a break.

18 Q. Why don't we take one now.

19 A. Fair enough.

20 THE VIDEOGRAPHER: The time on the video  
21 monitor is 2:31 p.m. Going off the record. This ends  
22 tape four, volume two.

23 (Recess taken 2:31 p.m.

24 Resumed at 2:51 p.m.)

25 THE VIDEOGRAPHER: We are back on the

Confidential

459

1 Foreman - direct

2 A. I have my Diet Coke which is bad for me.

3 MS. KALLAS: I have a frappachino.

4 THE WITNESS: Ah, thank you. I'm just  
5 apologizing for my voice weakening.

6 MS. KALLAS: Do you feel like you can  
7 continue to answer questions?

8 THE WITNESS: I do. I do.

9 Q. Dr. Foreman, is it your view that the  
10 number of observations necessary to have a sufficient  
11 set of data to determine UCR, whether it's 80, 260 or  
12 something else, would be the same for each CPT/geozip  
13 combination or it would be different for different  
14 CPT/geozip combinations?

15 A. It's a question I hadn't considered. I'm  
16 tired. I have to think about the implications based  
17 on the shapes of distributions. For standard normal  
18 distributions, you know, the calculations are fairly  
19 straightforward. I haven't thought about the  
20 right-skewed distribution. I mean I think as we go  
21 forward and, you know, in applying the damage model,  
22 you know, we would develop that with some degree of  
23 -- not some degree. We would develop that with a  
24 degree of statistical accuracy to apply the model.

25 I suppose, also, as I think about your

Confidential

460

1 Foreman - direct  
2 question, I reflect on the use of nine data points,  
3 you know, as is in the current -- as a standard  
4 that's applied, to you know, all of the current  
5 CPT/geozip combinations; and, you know, I think  
6 Ingenix takes the approach that, you know, they can  
7 use a standard one or the PHCS database takes that  
8 approach.

9 I think it's reasonable to investigate  
10 whether or not that does produce, you know -- whether  
11 to have a standard uniform produces enough confidence  
12 or whether you need to look at the distributions for  
13 each one.

14 Q. Dr. Foreman, do you agree that claims  
15 involving Medicare participants and Medicare  
16 participating providers where payments are based on  
17 Medicare rates by federal law are not in this case?

18 MS. KALLAS: Objection to the extent it  
19 calls for a legal conclusion. You can answer.

20 A. It's my understanding that this case does  
21 not relate to Medicare HMO or Medicare Advantage  
22 types of claims. Having said that, I haven't looked  
23 at the claims in the claims data to know whether  
24 those claims are in here or how they would have been  
25 adjudicated, you know, whether, you know, by the way

Confidential

476

1 Foreman - direct  
2 of changing those percentiles in the Ingenix  
3 products.

4           So the last piece of that, if the  
5 profiling rules somehow removed data at the high end  
6 or the low end -- and let's focus on the high end, it  
7 had that potential to perhaps significantly alter the  
8 Ingenix product.

9           So I mean to the original question,  
10 inappropriate opinion, you know, I'm not drawing an  
11 opinion whether that was a legal problem. I don't  
12 even draw an opinion about the contract between Aetna  
13 and Ingenix. But from a statistical standpoint, that  
14 would constitute a problem and it would be worth --  
15 it would really be worth looking at the specifics of  
16 that problem, I mean to the extent that Aetna has or  
17 Ingenix has the contributed data and Aetna has a way  
18 to identify what that profiling did, I think you  
19 could determine what happened there. I don't think  
20 it would be appropriate to do anything other than to  
21 take a good hard long look at that.

22           Q.       Sitting here today, you haven't conducted  
23 any analysis of the effect of Aetna's profiling  
24 guidelines on the Ingenix data. Correct?

25           A.       That's correct. I do believe that we're



Confidential

505

1 Foreman - direct

2 over time.

3 A. These are the spreadsheets that were  
4 produced. They were the subject of the questions and  
5 answers yesterday. They are the output from the  
6 preliminary inquiry that I described yesterday to  
7 compare how billed charges and allowed charges track  
8 over time. They are not labeled.

9 I think Foreman-18 is the one they built  
10 from CIGNA data. The hour is late and I'm tired. I  
11 believe that the unlabeled one marked Foreman-19 was  
12 done from the Aetna ACAS data.

13 Q. Are you offering these preliminary  
14 analyses in support of any opinions relating to class  
15 certification in this case?

16 A. No, I'm not.

17 MS. KALLAS: Objection.

18 Q. Are you performing any analyses today  
19 that you expect to offer relating to class  
20 certification in this case?

21 MS. KALLAS: Objection.

22 A. At the current time, I'm performing -- I  
23 continue to perform analyses to try to understand  
24 basically the data, the way the data works,  
25 statements made by others in connection with all of

Confidential

506

1 Foreman - direct

2 this, the opinions, positions, observations contained  
3 in my reports, very specifically the initial report  
4 filed in connection with the matter, the responsive  
5 report, the testimony that I've given here, the  
6 testimony that I may give in the future would be part  
7 of that. I don't know what has, will or is going to  
8 happen with regard to CIGNA, for example. There may  
9 be additional reports required in connection with  
10 that.

11 So to some extent, you know, I can't  
12 answer part of your question. You know, the reports,  
13 the labels Foreman-3 and 4, 2 and 3, Foreman-3,  
14 Foreman-4, form the basics for my opinions, opinions  
15 are set forth in there. The testimony I have given  
16 here, that relates to that, I think is what it is.

17 So as we sit, truthfully I don't know  
18 where the case will lead and what will happen with it  
19 so for that reason I put caveats on my views.

20 Q. With the caveat that you don't know where  
21 the case will lead and that you may need to perform  
22 additional work in the CIGNA case, are you performing  
23 any on-going work or analyses relating to the Aetna  
24 case that you expect you will offer in support of  
25 class certification?

Confidential

507

1 Foreman - direct

2 MS. KALLAS: Objection.

3 A. Not to my knowledge. I'm currently not  
4 performing any data work. I do grunge data for the  
5 purpose of being curious, but it's not being done in  
6 connection with anything formal and, you know, as  
7 regards to supplemental reports or anything of the  
8 sort.

9 MR. SIGLER: Take a break, quick break.

10 THE VIDEOGRAPHER: The time on the video  
11 monitor is 7:03 p.m. We are off the record. This  
12 ends tape number seven.

13 (Recess at 7:03 p.m.

14 Resumed at 7:17 p.m.)

15 THE VIDEOGRAPHER: We are back on the  
16 record. The time on the video monitor is 7:17 p.m.  
17 This starts tape eight, volume two.

18 CROSS-EXAMINATION BY MR. PAPPAS:

19 Q. Good evening, Dr. Foreman. My name is  
20 Nicholas Pappas. I'm an attorney with Weil, Gotschal  
21 and Manges and we represent Ingenix and United  
22 Healthcare Corp. in MDL 2020, and I'll be taking your  
23 deposition for those defendants for that matter.

24 And I know the hour is late and we have  
25 been going for a number of hours, so I'm going to try

DR. STEPHEN FOREMAN  
ERRATA

Witness: Stephen Foreman  
Deposition Dates- May 17 and 18, 2010

Cases: *Franco v. CIGNA*, and *In re Aetna*, MDL 2020.

I wish to make the following changes, for the following reasons:

CORRECTIONS AND SIGNATURE

PAGE/LINE	CORRECTION	REASON FOR CHANGE
10/22	“subsequently” should be “subsequent”	Clarity
14/3	“Q.” should be deleted	Transcription error
14/5	“Q.” should be added before beginning of sentence	Transcription error
14/17	“that” should be “what”	Clarity
16/10	“data means differences” should be “data, means, differences”	Grammar
16/11	“de nova courses – nova” should be “ANOVA courses – ANOVA”	Spelling error
16/23	“autoregressive” should be “autoregression”	Grammar
16/24	“a-u-t-o-r-e- -“ should be “autoregression”	Clarity
18/10	“DMP” should be “DNP”	Clarity
19/8	“out of network” should be “in network”	Clarity
20/24	“de novas,” should be “ANOVA,”	Spelling error
24/8	“PIP” should be “the MSNJ”	Clarity
27/9	“claimant” should be “climate”	Clarity
31/19-20	“basis – actually three.” should be “basis.” [deleting “—actually three.”	Clarity
39/13	“call” should be “recall”	Clarity
47/23	“\$200” should by “200”	Transcription error
59/4	“I can’t.” should be “I can’t recall.”	Clarity
62/6	“yeah” should be “yes”	Clarity
70/5	“answer” should be “question”	Transcription error
81/18	“ACPT” should be “CPT”	Clarity
93/16	“slowly” should be “slow”	Clarity
93/19	“it’s” should be “there was”	Clarity
114/21	“for that” should be deleted after “used”	Clarity

DR. STEPHEN FOREMAN  
ERRATA

274/5	“charged” should be “charge”	Clarity
274/14	“charged” should be “charge”	Clarity
275/5	“charged” should be “charge”	Clarity
275/8	“charged” should be “charge”	Clarity
275/8	“charged” should be “charge”	Clarity
283/16	“1” should be “one”	Grammar
286/7	“from her” should be “former”	Transcription error
295/4	“booking” should be “looking into”	Transcription error
285/15	“sort of covering up in” should be deleted; “non-” should be added	Clarity
301/11	“determined” should be “might determine”	Tense
302/3	“Likes” should be “types”	Clarity
302/3	“was” should be “were”	Tense
313/13	“5” should be “five”	Grammar
313/17	“5” should be “five”	Grammar
345/6	“CS” should be “PHCS”	Transcription error
345/8	“they” should be “there”	Incorrect form
345/14	“circuit” should be changed to “UCR”	Transcription error
358/6	“bill” should be “billed”	Clarity
360/19	“bill” should be “billed”	Clarity
361/8	“two-timing” should be “two timing”	Clarity
361/12	“bill” should be “billed”	Clarity
361/11	“filing” should be “following”	Transcription error
361/12	“filing” should be “following”	Transcription error
380/6	“you” should be “I”	Clarity
386/25	“105” should be “\$105”	Clarity
387/9	“But for” should be ““but for””	Clarity
387/14	“But for” should be ““but for””	Clarity
387/15	“Ingenix” should be “Aetna”	Clarity
389/16	“flaw” should be deleted	Clarity
393/13	“213760” should be 99213/60	Clarity
414/13 & 14	“charged” should be “charge”	Clarity
483/4	“st’s should” be deleted	Clarity
489/4	“charged” should “charge”	Correct tense
502/11	“5.5” should be “5.4”	Transcription error
571/20	“scare” should be “scarce”	Transcription error
574/19	“unbiassed” should be “unbiased”	Spelling error
575/10	“unbiassed” should be “unbiased”	Spelling error

# EXHIBIT G

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

UNITED STATES DISTRICT COURT  
DISTRICT OF NEW JERSEY  
CASE NO. 07-CV-6039(SRC)(PS)  
DARLERY FRANCO, et :  
al., :  
 :  
Plaintiffs, :  
 :  
vs. :  
 :  
DEPOSITION OF:  
CONNECTICUT GENERAL :  
LIFE INSURANCE CO., : BERNARD SISKIN,  
et al, : Ph.D.  
 :  
Defendants. :  
----- :  
 :  
In Re: :  
 :  
AETNA UCR LITIGATION :  
MDL NO. 2020 :  
Master File No. :  
2:07-cv-3541 :  
 :  
-----  
 :  
 :  
TRANSCRIPT of the stenographic notes  
of the proceedings in the above-entitled  
matter, as taken by and before  
CAROLYN CHEVANCE, a Shorthand Reporter, and  
Notary Public of the State of New Jersey, held  
at the offices of WHATLEY, DRAKE & KALLAS,  
1540 Broadway, New York, New York, on May 13,  
2010, commencing at 9:28 a.m.

1           BERNARD R. SISKIN, Ph.D.

2   have to be controlling for those basic  
3   characteristics, such as the skills of the  
4   provider, the type of provider, the things  
5   which one would expect to effect charges.

6           Q       How did you identify what the  
7   core concepts would be for purposes of  
8   determining what are similarly situated  
9   providers for services?

10          A       Well, they were offered in my  
11   original -- based on combination of my own  
12   viewing as a consumer, what I think logic  
13   would define, that people would expect, based  
14   on discussion, what I read, some of the  
15   readings I had at the time, and that's  
16   basically where it comes from.

17                 I said if you assume these are  
18   the type of core charges everybody is saying  
19   matters, none of these are taken into  
20   consideration.

21          Q       When you say what you read at  
22   the time, first of all, when was that?

23          A       2004, there was a lot of  
24   depositions for the Hyatt (ph) people and in  
25   those days I was reading a lot. I don't



1                   BERNARD R. SISKIN, Ph.D.

2   remember too much of it now.

3                   Q       Have you read anything since on  
4   this topic, in evaluating whether or not your  
5   core concepts, as defined in 2004, remain the  
6   appropriate core concepts?

7                   A       Well, you are saying -- these  
8   are types of core concepts that one would  
9   expect, and I think we need to be controlled  
10   for for it to be meaningful.

11                   I don't contend that they are  
12   exhaustive or necessarily that every single  
13   thing I mentioned has to be controlled for.

14                   That I think would have to be --  
15   you know, essentially to a certain extent  
16   this is being done by the Syracuse Group.

17                   But that basically these type  
18   are the type of factors that one would need  
19   to consider if you are really going to be  
20   control for in the analysis, if you are going  
21   to define charges which are similarly  
22   situated.

23                   Q       First of all I want to go back  
24   to my question so I'm sure I get an answer to  
25   it.

1                   BERNARD R. SISKIN, Ph.D.

2                   Since 2004 have you done any  
3 additional reading on what constitutes core  
4 concepts?

5                   A        I wouldn't cut it off 2004.  
6 Since I testified 2006, no.

7                   Q        Since your 2006 supplemental  
8 report?

9                   A        Correct.  
10                   I might have done something  
11 between then and 2008, I don't recall. I did  
12 nothing after testifying, I know that is the  
13 cut off date.

14                   Q        So between 2006 and 2008 you  
15 might have done some reading on the topic?

16                   A        Right.

17                   Q        You don't know one way or the  
18 other?

19                   A        I don't remember at this point.

20                   Q        After 2008 you know you have  
21 not?

22                   A        Correct.

23                   Q        What materials do you recall  
24 reading?

25                   A        I know there was a lot of

1                   BERNARD R. SISKIN, Ph.D.

2 deposition testimony. I don't recall at this  
3 time the details.

4           Q       Do you recall what deposition  
5 testimony you reviewed?

6           A       No, not sitting here.

7           Q       Do you recall with certainty  
8 there was deposition testimony on this topic?

9           A       Well, there was deposition  
10 testimony, there was also testimony -- yes,  
11 it was deposition testimony.

12                   And we deposed the other --  
13 there was another expert that testified that  
14 everything under CPT charges is fungible,  
15 doesn't matter whether a cardiologist is  
16 reading your x-ray, your EKG, or general  
17 practitioner or nurse practitioner, it is all  
18 the same thing. So I'm aware that there is a  
19 debate over this issue.

20           Q       Are you talking now about in the  
21 Health Net case?

22           A       Right.

23           Q       Now, based on your personal  
24 anecdotal experience, is that a fair way to  
25 put it?

1                   BERNARD R. SISKIN, Ph.D.

2           A        I wouldn't call it anecdotal.

3           Q        Your personal views?

4           A        I think the interesting question  
5 here is essentially you're telling the  
6 customer usual -- I'm a customer, I have  
7 healthcare plans, so essentially it is not  
8 anecdotal.

9                   I'm giving what I think a  
10 typical -- and I've talked to a lot of people  
11 about this.

12          Q        Who have you talked to?

13          A        I've talked to doctors, I've  
14 talked to everybody in the office, I've  
15 talked to people because of this case, what  
16 they would think.

17                   I have asked the question do you  
18 really think if you go to a specialist to  
19 read your cardiogram, your EKG that is the --  
20 do you expect to pay the same thing when you  
21 go to the doctor.

22          Q        Do you have any records of those  
23 discussions?

24          A        No.

25          Q        Do you know how many there were?

1                   BERNARD R. SISKIN, Ph.D.

2   view on what the core concepts are as an  
3   expert opinion, are you?

4           A       What I offered as an expert  
5   opinion in my report, as I said, as a  
6   statistician we deal with similarly situated  
7   all the time, and that's the concept people  
8   are talking about.

9                   And these are the types of  
10   things that people would normally consider,  
11   for similarly situated, but I'm not saying  
12   that this is the definition of similarly  
13   situated.

14          Q       And these are things that people  
15   would normally consider in similarly situated  
16   for purposes of medical charges?

17          A       I think most of these are things  
18   people would consider, yes.

19          Q       And that is based on the  
20   investigation that you described?

21          A       Right.

22          Q       Your reading and your  
23   discussions with people?

24          A       Correct.

25          Q       Are there core concepts that

1                   BERNARD R. SISKIN, Ph.D.

2       Aetna is obligated to apply separate and  
3       apart from what's set out in the definition  
4       of reasonable and customary in its contracts?

5           A       I have no idea.

6           Q       That is a legal conclusion?

7           A       That is a legal conclusion as to  
8       what they have to or do not have to.

9           Q       You have no opinion on that?

10          A       No.

11          Q       So in this litigation you are  
12       not offering any opinion on the  
13       interpretation of Aetna's health plan  
14       language, correct?

15          A       That's correct.

16          Q       Or the interpretation of any  
17       other health plan language?

18          A       I have never offered an opinion  
19       as to the interpretation of Health Net or  
20       anybody else's legal obligation.

21                   I offer the opinion that the  
22       Ingenix, they do not consider these core  
23       concepts. So if they have to consider the  
24       basic core concepts, that they don't do it.

25                   If you believe that everything

1                   BERNARD R. SISKIN, Ph.D.  
2   within a CPT code in a given geo zip are  
3   fungible and similarly situated, regardless  
4   of the provider, where the service is, and  
5   all those characteristics, then you would  
6   come to a different conclusion.

7           Q       I'm sorry, I want to make sure I  
8   understood what you said.

9                   Are you saying that you believe  
10   that under the Aetna contract language it is  
11   obligated --

12          A       No.

13          Q       -- to apply the core concepts  
14   you define in your reports?

15          A       No, that is not what I said.

16                   I said that -- what I said was  
17   that if you define -- if they are obligated  
18   to define, if the similar situated, okay, and  
19   if the obligation -- if similarly situated is  
20   met by the assumption that within a CPT code,  
21   regardless of the provider, regardless of the  
22   modifier, regardless of the place of service,  
23   regardless of any characteristics,  
24   qualifications or skills that the person  
25   giving the service, that they are all

1                   BERNARD R. SISKIN, Ph.D.

2 fungible; then in fact the use of Ingenix  
3 database would be sufficient.

4                   If that is not the case, and you  
5 define similarly situated considering any of  
6 the core concepts that I discussed, then  
7 clearly it would not be sufficient.

8                   What that legal obligation for  
9 Aetna or any carrier contractually or  
10 anything, I have no opinion. No -- that's...

11           Q       Now, you touched on similarly  
12 situated, and I would just like to explore  
13 that a minute to make sure I understand.

14                   Similarly situated is a concept  
15 that you deal with a fair amount in  
16 discrimination cases, correct?

17           A       Correct.

18           Q       For example, in a disparit  
19 treatment case statistical analysis can be  
20 used to test whether employees in a protected  
21 class, who are otherwise similarly situated  
22 to a non-protected class, who suffered  
23 statistically disparit treatment, right?

24           A       It's a very technical definition  
25 for that circumstance.



1                   BERNARD R. SISKIN, Ph.D.

2   the key is to have data regarding the prices  
3   of similarly situated items or events,  
4   correct?

5           A       Correct.

6           Q       And it is your opinion that  
7   determining and obtaining a population of  
8   similarly situated items is the key to  
9   statistical issue?

10          A       The -- well, let me expand that  
11   slightly, getting the data and defining  
12   similarly situated.

13          Q       And determination is what  
14   constitute similarly situated items, in that  
15   instance, is a fact dependent issue, correct?

16          A       No, that is judgmental and part  
17   fact.

18          Q       Part judgment and part fact?

19          A       Correct.

20          Q       Now, you've identified four  
21   categories of similarities that must be  
22   evaluated to assess a reasonable charge,  
23   correct?

24          A       I believe so.

25          Q       And specifically page five of

1                   BERNARD R. SISKIN, Ph.D.

2   your report you state, "That to assess a  
3   reasonable charge for a particular medical  
4   service one must --

5           A       Which report?

6           Q       Page five on your 2010 report.  
7   Exhibit 4.

8                   Second full paragraph, "To  
9   assess a reasonable charge for a particular  
10   medical service one must rely on actual  
11   charges billed by similar providers for  
12   reasonably similar services performed for  
13   similar patients (age, et cetera) and a  
14   relevant geographic area."

15                   Did I read that correctly?

16          A       Yes.

17          Q       Are those in fact the factors or  
18   the core factors that you believe have to be  
19   taken into account to assess a reasonable  
20   charge?

21          A       They have to be similar  
22   providers in the sense that they are  
23   providing the same service and --

24          Q       We will talk about each. I just  
25   want to know --

1                   BERNARD R. SISKIN, Ph.D.

2           A       Yeah, that is basically the four  
3 broad factors.

4           Q       Now, are you an expert on what  
5 constitutes similarly situated medical  
6 providers?

7           A       No.

8           Q       Are you offering an expert  
9 opinion in this litigation on what  
10 constitutes similarly situated medical  
11 providers?

12          A       I am offering an opinion as to  
13 what the assumption is under the Ingenix  
14 database and under most of the other  
15 databases, that is that the provider who  
16 provides the service is the same regardless  
17 of his skills, abilities, background, degree,  
18 years of experience, whether he is an M.D., a  
19 nurse practitioner, DO, whether he is board  
20 certified, non-board certified, whether he  
21 just graduated medical school, or been  
22 practicing for 20 years, the assumption is  
23 they are all fungible.

24                   I don't believe that is a  
25 reasonable assumption. That's my opinion.

1                   BERNARD R. SISKIN, Ph.D.

2   I'm not sure that's an expert opinion. But  
3   I'm offering, as a statistician, that that is  
4   the assumption that Ingenix makes.

5               Q       And are you offering an expert  
6   opinion on what the proper factors are in  
7   determining what a similarly situated medical  
8   provider is?

9               A       I offer an opinion that based on  
10   what I read, what I think most consumers  
11   would expect, that most people expect to pay  
12   different prices for a specialist then a  
13   non-specialist.

14                   Most plans you can't just go to  
15   a specialist, you have to get approvals. If  
16   they are the same why can't you go to a  
17   specialist first.

18                   A lot of things like that.  
19   Commonsense, and I would argue that logic  
20   tells you that quality of a person, you would  
21   expect to pay more for a specialist then a  
22   non-specialist, these are things which I  
23   would expect to effect.

24                   Now the question as to whether  
25   they do, whether or not the decision-maker,

1                   BERNARD R. SISKIN, Ph.D.  
2   finder of fact, would believe that those are  
3   things that would matter, is ultimately the  
4   decision-makers.

5           Q       Those are assumption to which  
6   you apply your statistical principals,  
7   correct?

8           A       Correct.

9           Q       But you are not here as an  
10   expert on what constitutes similarly situated  
11   medical providers, correct?

12          A       Correct.

13          Q       You are not here as an expert on  
14   what is sufficiently similar to constitute a  
15   specific medical market, correct?

16          A       Correct.

17                   MR. EPSTEIN: I object to that  
18   question.

19          A       You mean the market area,  
20   geographic areas?

21          Q       Yes.

22          A       I have not offered an opinion as  
23   to -- and I have not studied as to how the  
24   markets would be defined.

25          Q       You're not here today as an

1                   BERNARD R. SISKIN, Ph.D.

2   expert on what should be taken into account  
3   in determining what is a similar medical  
4   service, correct?

5           A       Correct.

6           Q       Each of those determinations are  
7   questions of fact, correct?

8           A       Fact. And judgment, in some  
9   cases. Fact in some cases.

10          Q       Now --

11          A       But --

12          Q       -- let's talk about similar  
13   providers for a moment.

14                   A few moments ago you laid out a  
15   number of different factors in terms of  
16   education and expertise and training, that in  
17   your experience you think should be taken  
18   into account or -- I'm sorry --

19          A       Should be considered. I would  
20   say how much -- distinguish between them,  
21   okay, is there a difference between a board  
22   certified specialist and non-board certified  
23   specialist, does a consumer -- are the  
24   charges, for instance, of the board certified  
25   guy at Sloan Kettering different from a

1                   BERNARD R. SISKIN, Ph.D.

2   oncology, he might be at Sloan Kettering.

3                   So that if you -- if you are  
4   controlling for Sloan Kettering, you may be  
5   controlling for that factor, but if you are  
6   not controlling for Sloan Kettering and you  
7   don't care, then you are not really  
8   controlling for that factor.

9                   Q       Who is going to determine what  
10   you need to control for in determining who  
11   are similar providers?

12                  A       Somebody who does a pretty good  
13   detailed analysis of these type of  
14   characteristics, what's correlated, what  
15   affects the marketplace, what is similarly  
16   situated, what affects the medical process.

17                  Q       Are these people who are expert  
18   in the medical area?

19                  A       Typically a team. Experts in  
20   the medical area, statisticians, economists.

21                  Q       You haven't done it, correct?

22                  A       I was not interested in doing  
23   it. I turned it down when I was offered an  
24   opportunity to be part of the team.

25                  Q       You didn't do it in issuing any

1                   BERNARD R. SISKIN, Ph.D.

2   of your reports in any of these lawsuits,  
3   correct?

4           A       I never argued that I have  
5   defined appropriate UCR. I'm just saying  
6   consistently that what's produced is not  
7   appropriate UCR.

8           Q       My question --

9                   MR. EPSTEIN: Don't interrupt  
10           him.

11          Q       Are you done, sir?

12          A       Yes.

13          Q       My question now is, have you  
14   ever determined what factors should be taken  
15   into account in determining who is a similar  
16   provider?

17          A       Other than the broad  
18   characteristics I listed here, no.

19          Q       Have you ever determined what  
20   the methodology would be to make those  
21   determinations, other than putting a team of  
22   experts together to do it?

23          A       No.

24          Q       Have you ever determined how  
25   many different factors would need to be taken



1                   BERNARD R. SISKIN, Ph.D.

2                   No, I have not done any  
3 analysis.

4           Q       Do you have any opinion on how  
5 often grouping data by CPT code fails to  
6 capture the appropriate set of providers?

7           A       I did look at that initially, to  
8 make sure -- CPT codes, and I was surprised,  
9 you would find -- some of the ones which I  
10 thought were a little more sophisticated, you  
11 found GP's, nurse practitioners, M.D.'s, it  
12 was actually broader than I expected.

13                   So I did look at that, but  
14 again, I didn't have the full data set and --

15           Q       What did you look at?

16           A       We looked at the data they gave  
17 us, we looked at the provider codes, whether  
18 they were M.D.'s, et cetera, to the extent  
19 they were in the data, under a CPT code and  
20 we saw it had nurse practitioners, Doctors,  
21 et cetera. A variety --

22           Q       Do you know which codes?

23           A       No.

24           Q       Do you know whether the  
25 services, in fact, could be performed on an

1                   BERNARD R. SISKIN, Ph.D.  
2   equal level by each category of provider that  
3   was coding it?

4                   A       That -- I'm aware of the  
5   argument, it says that, you know, somebody  
6   reading an EKG is reading an EKG. Doesn't  
7   matter who they are. I would think that has  
8   to be proven.

9                   Q       You agree that somebody drawing  
10   blood who is adept at drawing blood could be  
11   a Harvard trained board certified  
12   cardiologist or could be a nurse practitioner  
13   who is very good at drawing blood, correct?

14                  A       Sure.

15                  Q       And you do not know as you sit  
16   here today what CPT codes you looked at in  
17   that data sample, correct?

18                  A       As I said, I -- we looked at  
19   codes other than drawing blood.

20                         I looked at codes where I  
21   expected everybody to be a specialist and  
22   they were not, and I was surprised to find  
23   that there were even people that were not  
24   doctors in the code.

25                  Q       What were they?

1                   BERNARD R. SISKIN, Ph.D.

2                   form.

3                   A           I already answered that  
4 question.

5                   Q           You don't -- you are not an  
6 expert on what factors should go into that  
7 determination, correct?

8                   MR. EPSTEIN: Object to the  
9 form.

10                  A           As I said, I have done these  
11 things from a statistical viewpoint, from a  
12 medical side no.

13                  Q           And when you say you have done  
14 these things from a statistical viewpoint,  
15 have you ever done it in the context of  
16 medical markets?

17                  MR. EPSTEIN: Object to the  
18 form. Asked and answered.

19                  A           Not that I recall.

20                  Q           Do you know whether a medical  
21 market area can vary from procedure to  
22 procedure?

23                  A           It might, sure.

24                  Q           Do you know whether -- strike  
25 that.

1                   BERNARD R. SISKIN, Ph.D.

2           A        I'm not saying it does, but it  
3 could. I would think it could. But that is  
4 again, not -- not a statistical answer.

5           Q        Do you have an opinion on how a  
6 medical market should be defined in, for  
7 example, a town with one heart surgeon?

8                   MR. EPSTEIN: Object to the  
9 form.

10          A        If there is a town with one  
11 heart surgeon? You have to give me a lot  
12 more information before I can answer that  
13 question.

14          Q        Let's talk a little bit about  
15 it.

16                   You have a town with one heart  
17 surgeon in it, who is performing for services  
18 that are not being performed by other  
19 providers in that town, and the next nearest  
20 town is 50 miles away, and there is another  
21 heart surgeon there.

22                   Do you have any views on what  
23 the medical market would be for the first  
24 heart surgeon?

25                   MR. EPSTEIN: Object to the

1           BERNARD R. SISKIN, Ph.D.

2           MR. DOREN: This is going to  
3 stop. Now it's exhibit four. I will  
4 identify the exhibit going forward, but  
5 this cannot turn into a prattling set of  
6 interruptions.

7           I appreciate you asking for the  
8 identification, I will provide that  
9 going forward.

10          MR. EPSTEIN: What is going to  
11 stop?

12          Q       Dr. Siskin, you are not, and I  
13 realize I have asked this question before,  
14 but giving the disruption I need to get us  
15 reoriented.

16          MR. EPSTEIN: Object to the form  
17 of the question.

18          Q       You are not offering any  
19 opinions on the application of Aetna's  
20 contractual language, correct?

21          A       That is correct.

22          Q       And you are not offering any  
23 opinions on the interpretation of that  
24 language, correct?

25          A       That's correct.

1                   BERNARD R. SISKIN, Ph.D.

2           Q       Or what is required to comply  
3 with that language, correct?

4                   MR. EPSTEIN: Object, asked and  
5 answered.

6           A       Correct.

7                   MR. EPSTEIN: Several times.

8           Q       So when you are speaking in  
9 terms of UCR or R&C, for purposes of your  
10 statistical analysis, could you please  
11 explain for me what you are doing, separate  
12 and apart from the contractual language that  
13 you are not opining on?

14                   MR. EPSTEIN: Object to the form  
15 of the question.

16           A       I thought I answered this.

17                   What I said is I have looked at  
18 the Ingenix database, okay, and with -- the  
19 Ingenix database produces a number based on a  
20 specific CPT code, under the assumption that  
21 everything in that CPT code, okay, is  
22 similarly situated; regardless of who the  
23 provider is, regardless of the modification  
24 codes, or any other information.

25                   The only information it has is

1                   BERNARD R. SISKIN, Ph.D.  
2     the charge, it's in the CPT code, it's in the  
3     zip code, that's the information.

4                   Now, if you accept that as being  
5     a reasonable definition of similarly situated  
6     charges, in order to develop what is a  
7     reasonable and customary number within that  
8     distribution, then I would say it's fine.

9                   But I would say as a  
10    statistician, the definition of similarly  
11    situated typically would have to consider all  
12    these other factors generally, at least  
13    consider them, and you may say they are all  
14    unimportant, and I understand some people  
15    have said that, but somebody would have to  
16    decide whether it is valid; if you ignore the  
17    provider qualifications, the modifications,  
18    the place of service, and all these other  
19    characteristics.

20                  And that's simple as my  
21    testimony. It's that simple on that score.

22                  Q     And the purpose of your work  
23    here has been to determine what factors may  
24    go in to determining what charges are  
25    similarly situated, is that right?

1           BERNARD R. SISKIN, Ph.D.

2           MR. EPSTEIN: Object to the  
3 form. Asked and answered several times.

4           A       No. My purpose was to answer  
5 the question as to whether or not the Ingenix  
6 database as so consisted and produced could  
7 be a reasonable and appropriate database for  
8 construction of UCR, and my conclusion is no,  
9 it is not.

10          Q       And again --

11          MR. EPSTEIN: He was in the  
12 middle of speaking.

13          A       I do not have an opinion, okay,  
14 as to what -- I just know it is  
15 inappropriate.

16                 If you are going to develop an  
17 appropriate database you would have to  
18 consider these other type of factors in doing  
19 it.

20          Q       And since you are not  
21 interpreting or applying the language in the  
22 Aetna contract or any other health plan, when  
23 you say UCR, what do you mean?

24          A       Well, I define UCR as defining a  
25 usual and customary charge from -- again, I



1                   BERNARD R. SISKIN, Ph.D.  
2 view this from the consumer viewpoint, okay.

3                   I would say from looking at  
4 something, and I want to say okay, this is  
5 reasonably similarly situated and there is a  
6 variation so we can define what is the usual  
7 distribution, we can then pick out what are  
8 the statistical outliers.

9                   If you can't do that then you  
10 can't define. If your distribution isn't  
11 appropriate, then you can't define what is  
12 usual and what is really an outlier.

13               Q       Do you mean -- do you in this  
14 case mean anything else by the term UCR?

15                   MR. EPSTEIN: Object to the form  
16 of the question.

17               A       No.

18               Q       The third element that you  
19 discuss as a potential reference point are  
20 similar patients, do you see that on page  
21 five of Exhibit 4?

22               A       Yes.

23               Q       And again, you are not an expert  
24 on what constitutes similar patients for  
25 various medical services, correct?

1                   BERNARD R. SISKIN, Ph.D.

2                   MR. EPSTEIN: Objection. Any  
3                   question that begins with "again"  
4                   repeats prior questions, and I'm asking  
5                   you not to repeat questions over and  
6                   over again, it's becoming harassing.

7                   Object to the form as well.

8                   A        What was the question again?

9                   Q        I'll ask it again.

10                  MR. EPSTEIN: You didn't have to  
11                  ask it again the first time, you are  
12                  repeating the question.

13                  MR. DOREN: We would have been  
14                  off the topic by now. This isn't going  
15                  towards the eight hours debating with  
16                  you.

17                  Q        Dr. Siskin, you are not holding  
18                  yourself out here as an expert in determining  
19                  the factors in what is a similar patient for  
20                  a particular medical service, are you?

21                  MR. EPSTEIN: Objection to the  
22                  form.

23                  Q        You are not?

24                  A        Correct.

25                  Q        And again, these determinations

1                   BERNARD R. SISKIN, Ph.D.  
2       would be made by the team of experts that  
3       would need to be put together to make these  
4       sorts of determinations?

5                   MR. EPSTEIN:  Objection to the  
6       form.  Asked and answered maybe five  
7       times.

8           A       These are the type of things  
9       somebody would have to consider.  I assume  
10      somebody would be appropriately the team of  
11      knowledgeable experts.

12          Q       Do you have any other  
13      methodology in mind?

14                  MR. EPSTEIN:  Object to the  
15      form.

16          A       No.

17          Q       Are similar patients or the  
18      determination of whether two patients are  
19      similar; do you have a view as to whether  
20      that should be done from the view of the  
21      patient or the view of the physician or  
22      provider?

23          A       Well, I really don't have a view  
24      one way or the other, except that I know that  
25      they themselves put modifiers to distinguish

1                   BERNARD R. SISKIN, Ph.D.

2   the high and low factors -- strike that.

3                   Do you know how Ingenix  
4   determines the high and low factors that it  
5   uses in the common scrubber?

6           A       I remember trying to find that  
7   in the documentation, I forget but -- either  
8   it was just arbitrarily chosen, I don't  
9   remember anybody ever explaining how these  
10   numbers were picked. They may have been a  
11   carry over from the Hyatt (ph) days.

12          Q       On page 22 of your report, you  
13   state that, "The high and low factors used in  
14   the common scrubber formula are arbitrary",  
15   correct, do you see that footnote ten and  
16   also the sentence footnote ten hangs off of.

17          A       Correct.

18          Q       What is the basis for the  
19   conclusion that it was arbitrary?

20          A       Well, again, it comes from  
21   trying to determine and reviewing the  
22   documents, there was no -- there were some  
23   documents that said it was essentially  
24   arbitrary, it was an arbitrary choice, a  
25   subjective choice.

1                   BERNARD R. SISKIN, Ph.D.

2                   Never had an explanation as to  
3 the development of those standards, which  
4 would explain they were not arbitrary.

5           Q       As a result of not having  
6 received an explanation for how they were  
7 developed you concluded that it was  
8 arbitrary?

9           A       I remember the Hyatt (ph)  
10 numbers were arbitrary. I remember being at  
11 the deposition they were explained how they  
12 were just chosen, purely arbitrary and  
13 statistical, and these numbers are pretty  
14 close to what they were doing, if I recall.  
15 I would have to go back over the documents.

16          Q       As you sit here today do you  
17 have any other basis for the statement that  
18 the common scrubber formula high and low  
19 factors were arbitrary?

20          A       Not that I remember.

21          Q       Do you have a methodology in  
22 mind as to how Ingenix could differentiate  
23 between what you would consider valid high  
24 charges and high charges that are invalid?

25          A       To a certain extent, yeah.

1                   BERNARD R. SISKIN, Ph.D.

2                   Q       What would that methodology be?

3                   A       It could mean a panel of experts  
4 in an area to say that, you know, any charge  
5 at this level can't be correct, nobody  
6 charges that number.

7                   They could look at the charges  
8 that were high -- I don't know if they have  
9 access to it or not, but you could look at  
10 the ones they think are high, call up the  
11 doctor and say is this what you really  
12 charged, get the original document submitted  
13 and see whether in fact the charge submitted  
14 by the doctor was a keypunch error, the wrong  
15 code.

16                   The things you can do to do  
17 this, which are done by statistician, you  
18 identify cases which potentially could be  
19 data errors and then you go back to files and  
20 find out that they are data errors.

21                   Q       As a general matter, in terms of  
22 evaluating claim data being compiled for  
23 purposes of determining what a prevailing  
24 charge is in a particular community for a  
25 particular service, would you apply any sort

1                   BERNARD R. SISKIN, Ph.D.

2   of screen for claims that are billed at  
3   simply an egregious level?

4           A       Egregious or incorrect?

5           Q       Exactly what I'm asking?

6           A       No, because that is a valid  
7   charge and that is the high. That would be  
8   an unusual charge, that is what you are  
9   trying to determine.

10          Q       I spoke over you, you would not  
11   eliminate egregiously high charges if that  
12   was what was actually charged; is that  
13   correct?

14                   MR. EPSTEIN: Objection, without  
15   a definition.

16          A       You are supposed to identify --  
17   would I eliminate them from the database or  
18   define them as being unusual?

19          Q       Let's start with would you  
20   eliminate them from the database?

21          A       No.

22          Q       And if you defined them as  
23   unusual, what impact would that have in your  
24   methodology?

25          A       Nothing. It would be in the

BERNARD SISKIN, Ph.D.

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY

-----X

DARLERY FRANCO, et al.,

Plaintiffs,

- against - CASE NO. 07-CV-6039(SRC)(PS)

CONNECTICUT GENERAL LIFE  
INSURANCE CO., et al.,

Defendants.

-----X

In Re:

AETNA UCR LITIGATION  
MDL NO. 2020

Master File No.  
2:07-CV-3541

-----X

VIDEOTAPED DEPOSITION OF BERNARD SISKIN, Ph.D.

New York, New York

Friday, May 14, 2010

REPORTED BY: BARBARA R. ZELTMAN  
Professional Stenographic Reporter



1                   BERNARD SISKIN, Ph.D.

2           statistician applying it in a variety of  
3           fields.

4           Q       I see.

5                   Apart from statistical  
6           applications that are relevant to  
7           industrial organizations, you are not an  
8           expert in industrial organization?

9           A       Correct. I'm a statistician.

10          Q       And you are not an expert in  
11       antitrust?

12       A       Not at all in antitrust.

13       Q       I want to talk about some of  
14       the testimony you gave yesterday.

15                   Correct me if I get this wrong  
16       but as I understood it, what you are  
17       basically saying is that although you do  
18       not have the expertise to identify  
19       definitively the factors that need to be  
20       taken into account in calculating a true  
21       UCR, it's your opinion that someone with  
22       greater expertise or a committee of  
23       people with greater expertise should  
24       consider a number of factors and  
25       determine whether they're relevant to

1                   BERNARD SISKIN, Ph.D.  
2           the true UCR calculation; is that right?

3                   MR. EPSTEIN: I object to  
4                   that, to the form of the  
5                   question. Mischaracterizes the  
6                   testimony. Improper summary of  
7                   the testimony. And to the  
8                   extent you are attempting to  
9                   summarize the testimony, I think  
10                  we had an agreement that you  
11                  would not repeat anything.

12                  If you do want to look at  
13                  testimony, I think it behooves you to  
14                  pull it out of the record because  
15                  this is a very difficult matter for  
16                  somebody to memorize exactly what was  
17                  said especially when you have  
18                  questions that go on.

19                  I don't think it's good practice.  
20                  You can ask questions but not try to  
21                  repeat yesterday's testimony.

22           BY MR. SIMON:

23                   Q       Did I get that right?

24                   A       No.

25                   Q       What did I get wrong?

1                   BERNARD SISKIN, Ph.D.

2           A        I don't want to have to repeat  
3           anything, but essentially what I'm  
4           saying is very simple.

5                   I started out by looking and what  
6           I was asked to look at was what Ingenix  
7           does, and that's very simple. Ingenix  
8           produces a distribution of charges based  
9           on four data points and four data points  
10          only.

11                   That is CPT code, the date, the  
12          zip code, where the procedure is and the  
13          charge.

14                   And I say I'm not an expert in  
15          medical, but I know the definition of  
16          similarly situated. And statisticians  
17          look at distributions, we look the  
18          distributions trying to determine  
19          whether the usual customary charge.  
20          That represents UCR if and only if one  
21          concludes that that's not only thing  
22          relevant to a distribution that you  
23          would expect. If I tell you I have a  
24          charge for a CPT code in a particular  
25          zip code, they're all the same, they're

1                   BERNARD SISKIN, Ph.D.

2                   all fungible. They are all identical.  
3                   I wouldn't expect one to be higher than  
4                   the other except for the random trust.  
5                   They're all comparable.

6                   That's the basic assumption that  
7                   that requires. Doesn't matter whether  
8                   there's modifier on there or not a  
9                   modifier. None of that matter. Doesn't  
10                  matter whether it's done by a  
11                  cardiologist, by the GP, general  
12                  practitioner or nurse practitioner,  
13                  doesn't matter. They are all  
14                  comparable. That's the assumption you  
15                  are making if you are going to do that  
16                  type of analysis.

17                  I say I don't think that's  
18                  reasonable from a consumer viewpoint.

19                  I know I wouldn't expect that.  
20                  I've been asked to study in other areas  
21                  these types of questions. I don't think  
22                  that's reasonable.

23                  I would then say I have done some  
24                  research in general literature,  
25                  et cetera, and there seem be

1                   BERNARD SISKIN, Ph.D.

2                   characteristics that one would normally  
3                   think about, that is, the quality of the  
4                   provider, the characteristics of the  
5                   provider.

6                   Q       Are you finished?

7                   A       The complexity of as indicated  
8                   by the modifiers. I'm not so sure a geo  
9                   zip code is an appropriate market area.

10                  These are all things that one  
11                  should be considering or one would think  
12                  one would consider to develop a  
13                  reasonable definition of usual and  
14                  customary.

15                  Now, at that point, I say I'm not  
16                  the expert to be able to determine all  
17                  the factors that you really should  
18                  control for. That really requires  
19                  combination of looking at the  
20                  statistics, looking at the data and  
21                  talking to experts and telling you what  
22                  things you might consider.

23                  And that's my opinion.

24                  Q       That's fair enough.

25                  All I wanted to do was try to

1                   BERNARD SISKIN, Ph.D.

2           you just gave here?

3           A       Not specifically. But you  
4           asked, do I think it exists in writing?

5                   I think you would find one of  
6           those plans that would fit that  
7           definition that I gave. You could find  
8           a definition.

9                   I think they all infer that it is  
10          the definition, but that's a legal  
11          question. But that's that statistical  
12          definition that I was using.

13          Q       Isn't it accurate, Dr. Siskin,  
14          that the concept of UCR that you just  
15          testified to, and as you testified to  
16          yesterday, is a product of your own  
17          reasoning and what you believe consumers  
18          would expect to be reimbursed, rather  
19          than some description in a contract or a  
20          plan or some legal standard?

21                   MR. EPSTEIN: Objection.

22                   Asked and answered.

23          A       No.

24          Q       Why do you say "No"?

25          A       For all the reasons I've given

1                   BERNARD SISKIN, Ph.D.

2                   for the last day and a half.

3                   I believe that if you accept that  
4                   the Ingenix database represents UCR,  
5                   then you have to accept -- if you're  
6                   saying usual provider charges, that all  
7                   providers are the same, regardless of  
8                   their qualifications; all the services  
9                   are the same, regardless of the provider  
10                  or the patient characteristics and  
11                  modifiers, you'd have to believe that a  
12                  geo zip appropriately defines a medical  
13                  market area. I don't think that is  
14                  true.

15                  Now, what I've said is -- this  
16                  portion is mine -- that given these type  
17                  of characteristics, it seems me that the  
18                  factors that one would have to consider  
19                  to define an appropriate UCR are the  
20                  factors I've laid out.

21                  And to that extent, those factors  
22                  that I laid out, I think, are based on  
23                  my reading of them as a consumer, in  
24                  reading of the medical literature and  
25                  reading the literature, that these are

1                   BERNARD SISKIN, Ph.D.

2           the type of factors that one would  
3           normally think of controlling for.

4                   But as I pointed out, you know,  
5           they may be added to or subtracted to on  
6           the basis of other medical expertise, or  
7           they may be added to or subtracted to  
8           based on empirical data.

9           Q       You agree that it's a legal  
10          question as to what these plan standards  
11          require, correct?

12          A       Yes.

13          Q       And you've already testified  
14          you've not studied the contents of such  
15          plans or their definitions, correct?

16                   MR. EPSTEIN:  Objection to  
17                   the form.

18                   You're asking him to memorize  
19                   whatever he's testified in the past,  
20                   and then it would be asked and  
21                   answered.

22                   THE WITNESS:  Can you read  
23                   back the question?

24          Q       You've not studied the contents  
25          of the employee benefit plans or their



# EXHIBIT H

1 IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY  
2 MDL No. 2020  
Master File No. 2:07-CV-3541  
3 - - - - - x  
In Re:

4 AETNA UCR LITIGATION  
5 - - - - - x  
6 FOR THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY  
7 Civil Action No. 07-CV-6039 (SRC)(PS)  
- - - - - x

8 DARLERY FRANCO, individually and  
on behalf of all others similarly situated,  
9 Plaintiff,  
- against -  
10 CONNECTICUT GENERAL LIFE INSURANCE CO.,  
CIGNA CORPORATION and CIGNA HEALTH  
11 CORPORATION,  
Defendants.

12 - - - - - x  
13 May 20, 2010  
14 9:49 a.m.

15  
16 VIDEOTAPED DEPOSITION of DR. GORDON RAUSSER, held  
17 at 1540 Broadway, New York, New York, before Kim  
18 Auslander, Registered Professional Reporter and Notary  
19 Public of the State of New York.

20  
21  
22  
23  
24  
25 Job No. NJ260507

1 here for time on end listening to  
2 questions about what he's not offering  
3 when he's already told you what he is  
4 offering.

5 So I would ask you to please  
6 ask questions that are relevant, and  
7 if you continue to ask questions like  
8 this -- he told you what he's  
9 offering -- then we will clearly put a  
10 stop to it, but go ahead.

11 MR. LIPTON: Joe, I appreciate  
12 the speech. Thank you very much.

13 If Dr. Rausser is not offering  
14 opinions in these areas, it will be an  
15 easy series of nos, and is it isn't  
16 that many.

17 Read back the question,  
18 please.

19 (Record read back.)

20 A. No.

21 Q. Are you offering an opinion  
22 that some data distributions in the Ingenix  
23 PHCS database are suppressed?

24 A. No.

25 Q. Footnote 1, footnote 7 and

1 footnote 15 of your report, you refer to  
2 Dr. Siskin's analysis of Ingenix' scrubbing  
3 methodology. Can you please take a look.

4 A. I have 1 and 7. What was the  
5 other?

6 Q. Footnote 1, footnote 7 and  
7 footnote 15.

8 A. Yes.

9 Q. Can you tell me what Ingenix'  
10 scrubbing methodology is?

11 A. That is not an analysis I  
12 conducted and I am not here to represent  
13 either the analysis that's been conducted  
14 by Dr. Foreman or Dr. Siskin.

15 Q. Can you turn to paragraph 18  
16 of your report, please.

17 MR. WHATLEY: What page is  
18 that on?

19 MR. LIPTON: Page 13.

20 Q. Start right in the middle of  
21 that paragraph. It says:

22 The data scrubbing practices  
23 that Ingenix employed improperly eliminated  
24 charges in the upper range of those reported  
25 and thus led to a systematic downward bias

1 and the resulting UCRs, thereby impacting  
2 the class members.

3 Did I read that correctly?

4 A. Yes.

5 Q. Are you referring there to an  
6 opinion that you are offering in this case?

7 A. I'm referring there to my  
8 reliance on the opinions that are offered  
9 by other experts.

10 Moreover, if you look at the  
11 sum and substance of opinion number six, I  
12 have represented, and my opinion is that the  
13 data exists for making that determination  
14 based on their work and my review of the  
15 available public documents on the  
16 investigations that have taken place.

17 Q. The sentence that I read there  
18 refers to opinions of others that you are  
19 referencing here, is that accurate?

20 A. Yes.

21 Q. You haven't conducted your own  
22 analysis on that point; is that correct?

23 MR. WHATLEY: I think he gave  
24 you that answer three questions ago.

25 A. Yes.

1           Q.           The next sentence in that  
2 paragraph says:

3                       Aetna's own process of purging  
4 higher dollar charges before transmitting  
5 its data to Ingenix further contributed to  
6 this suppression.

7                       Did I read that correctly?

8           A.           You did.

9           Q.           Are you offering that as your  
10 own opinion in this case?

11          A.           No.

12          Q.           That sentence in paragraph 18,  
13 you are reporting the opinions of others;  
14 is that correct?

15          A.           Dr. Siskin and Dr. Foreman,  
16 yes.

17          Q.           Have you conducted any of your  
18 own analyses on that point?

19                       MR. BURKE:  Objection.  Asked  
20 and answered.

21          A.           No, but I have conducted  
22 sufficient analysis to offer the opinion  
23 that the data exists for validating and  
24 making that determination.

25                       And moreover, the data exists

1 for computing class-wide damages.

2 Q. We will get to that latter  
3 part in a minute. You haven't conducted  
4 your own -- any of your own analysis on  
5 that point; is that correct?

6 A. That's correct.

7 Q. The next sentence in that  
8 paragraph says:

9 In addition, other insurers  
10 such as CIGNA apparently contributed only  
11 partial data.

12 Did I read that correctly?

13 A. Yes.

14 Q. Are you offering your own  
15 expert opinion on that point in this case?

16 A. No.

17 Q. That sentence that I just  
18 read, are you reporting the opinions of  
19 others?

20 A. Yes.

21 Q. Do you know what data CIGNA  
22 failed to contribute to Ingenix?

23 A. No.

24 Q. With respect to the previous  
25 sentence where you say Aetna's own process

1 of purging higher dollar charges, do you  
2 know what Aetna's process of purging higher  
3 dollar charges is?

4 A. Asked and answered.

5 Q. Let me ask the question again.

6 A. You asked 20 times. I am not  
7 going to sit here and answer the same  
8 questions three and four times.

9 MR. BURKE: What happens here  
10 is we are trying to get a little bit  
11 of efficiency, but when you simply  
12 replicate the same questions that he  
13 went through or you are asking the  
14 same question in a duplicative manner  
15 of Dr. Rausser, it's not fair what  
16 you're doing to him.

17 You are intentionally trying  
18 to wear him down, badger the witness  
19 at the end of the day so he slips and  
20 makes a mistake. I'm not going to  
21 allow that to happen.

22 You can either ask a proper  
23 efficient question where you don't  
24 replot ground or we are going to stop  
25 the deposition now and you guys can



1 regroup and think about how you can be  
2 efficient lawyers, because I'm sick  
3 and tired of it.

4 MR. LIPTON: Are you finished?

5 MR. BURKE: I'm waiting to  
6 hear your question.

7 MR. LIPTON: I don't think  
8 this question was asked or answered  
9 before.

10 I have one question on this  
11 sentence that I would like to ask,  
12 then we can move on.

13 Q. Do you know what Aetna's  
14 process of purging higher dollar charges  
15 is?

16 A. Once again, that is not an  
17 analysis I have conducted. The answer is  
18 no.

19 Q. If you go down to the next  
20 sentence in that paragraph, you say:

21 Using a properly constructed  
22 set of UCRs as described in the report of  
23 Dr. Steven Foreman, the detailed claims  
24 processing data can then be employed to  
25 calculate for all claims the dollar amount

1 of the underpayment.

2 Did I read that correctly?

3 A. You did.

4 Q. In that sentence are you  
5 offering your own expert opinion?

6 A. I am offering my expert  
7 opinion about methodologies that can be  
8 used to compute the quantification of the  
9 underpayment, and that is based on my  
10 review of Dr. Foreman's report, and more  
11 specifically my own analysis with regard to  
12 opinion number six in my report that begins  
13 on page 43 that discusses the data that is  
14 available for computing the actual  
15 quantification or monetization of the harm  
16 that resulted from the alleged suppression.

17 Q. There is a reference in this  
18 sentence to properly constructed UCRs that  
19 were created by Dr. Foreman.

20 Do you know if Dr. Foreman has  
21 actually created any properly constructed  
22 UCRs?

23 A. He specified -- he has  
24 specified a methodology for doing so.

25 It's my understanding that his

1 methodology, and my review of his  
2 methodology is that it's implementable, but  
3 has he computed it? Not to my knowledge.

4 Q. What do you understand  
5 Dr. Foreman's methodology to be?

6 A. To determine what I would  
7 characterize as a but for UCR across the  
8 various segments associated with the CPT  
9 codes as well as the geo-zip designations.

10 Q. Do you know how that would be  
11 done?

12 A. That is a question for  
13 Dr. Foreman.

14 I simply reviewed what he has  
15 done, and if you want to ask me specific  
16 questions about my opinion in six, I am  
17 quite prepared to discuss it.

18 I haven't visited the question  
19 in my own analysis about the computation of  
20 those but for UCRs.

21 Q. If the but for UCRs are  
22 constructed by Dr. Foreman, do you have an  
23 opinion as to whether they would in all  
24 cases reflect higher values than are shown  
25 in the Ingenix PHCS database?

1           A.           I didn't use the word  
2 accurate. You are restating the testimony  
3 using that the word accurate. I don't know  
4 when I used the word accurate. Do you see  
5 it anywhere in my report?

6           Q.           Will you tell me what your but  
7 for world looks like?

8           A.           My but for world looks like  
9 Dr. Foreman's but for world.

10          Q.           What is that?

11          A.           You will have to ask  
12 Dr. Foreman. I am not here to testify on  
13 his behalf.

14          Q.           So you don't have your own  
15 expert opinion on what the but for world  
16 look likes?

17                       MR. BURKE: Objection.

18                       Mischaracterizes his testimony.

19          A.           I have a specific assignment.  
20 I have specified in my report what my  
21 assignment is. I have provided you with a  
22 set of opinions.

23                       I am not an expert, nor have I  
24 received an assignment to compute and  
25 monetize the harm that is alleged to have

1                   In these sentences you are not  
2 offering an opinion either way on whether  
3 the Ingenix percentile values are reduced;  
4 is that correct?

5           A.           With regard to my entire  
6 report, all of the evidence that is  
7 available that I've viewed and evaluated in  
8 public domain is overwhelming evidence that  
9 the UCRs had been suppressed, and I'm  
10 evaluating whether the structure of the  
11 data market and the downstream  
12 out-of-network services are consistent with  
13 the manipulation and suppression of the  
14 actual prices or reimbursements or  
15 allowances that are provided -- not  
16 provided -- are paid to providers and/or  
17 insured, and one has to look at the entire  
18 report with regard to each of those  
19 elements of my assessment of that evidence.

20           Q.           Let's look at paragraph 60, if  
21 you would, please, Dr. Rausser. I'll read  
22 you the first sentence of that paragraph:

23                   In the course of the New York  
24 Attorney General's investigation, actual  
25 claims data was analyzed to estimate the

1 difference between Ingenix' UCRs and the  
2 actual prevailing cost of particular CPT  
3 codes determined without statistical bias.

4 Did I read that correctly?

5 A. You did.

6 Q. Have you examined the New York  
7 Attorney General's methodology for  
8 constructing data distributions?

9 A. No.

10 Q. Have you examined any of the  
11 New York Attorney General's underlying  
12 data?

13 A. No.

14 Q. What is your basis for saying  
15 that the data distributions constructed by  
16 the New York Attorney General are without  
17 statistical bias?

18 A. Based on their  
19 representations.

20 Q. Do you know how many CPT  
21 codes, how many counties and how many time  
22 periods were examined by the New York  
23 Attorney General?

24 MR. BURKE: I object to form.

25 A. I do, but I don't have them

1 UNITED STATES DISTRICT COURT  
2 DISTRICT OF NEW JERSEY

---

3 DARLERY FRANCO, individually and on behalf  
4 of all others similarly situated,

5 Plaintiffs,

6 -against-

7 CONNECTICUT GENERAL LIFE INSURANCE CO., et  
8 al.,

9 Defendants.

---

10 IN RE: AETNA UCR LITIGATION

---

11  
12 May 21, 2010  
13 9:14 a.m.  
14  
15

16 CONTINUED DEPOSITION of GORDON  
17 RAUSSER, taken by Defendants, pursuant to  
18 Notice, held at the offices of WHATLEY  
19 DRAKE & KALLAS, LLC, 1540 Broadway, New  
20 York, New York before Wayne Hock, a Notary  
21 Public of the State of New York.  
22  
23  
24

25 Job No. NJ260511

1 forty-four, please.

2           You say in the middle of the  
3 paragraph, "I note that other parties have  
4 apparently been able to approximate the  
5 degree of underpayment," and then you  
6 provide the Health Net settlement as an  
7 example.

8           Do you see that?

9       A.     I do.

10       Q.    Are there other examples that  
11 you have in mind in this sentence?

12       A.    With regard to a particular  
13 insurer, I believe that's the only example  
14 I have from the public record, that's at  
15 least the only one I recall.

16       Q.    With regard to the Health Net  
17 case, I didn't see any documents in your  
18 list of materials relied on from the  
19 Health Net case.

20           Have you analyzed any materials  
21 from the Health Net case as part of your  
22 opinions here?

23       A.    I have cited and relied upon the  
24 Senate staff report and that's what I used  
25 in reporting this example.



1 Q. Does the Senate staff report  
2 contain any evidence regarding the  
3 settlement negotiations in the Health Net  
4 case?

5 A. Only the outcome.

6 Q. Do you know how the settlement  
7 amount in the Health Net case was  
8 determined?

9 A. No.

10 Q. Please look at paragraph  
11 sixty-two in your report. The first  
12 sentence of paragraph sixty-two states,  
13 "the fact that prevailing rates can be  
14 accurately and fairly estimated is borne  
15 out by the efforts of the newly formed  
16 nonprofit organization that has taken over  
17 the PHCS/MDR database."

18 Do you see that?

19 A. I do.

20 Q. What is it about the efforts of  
21 the nonprofit organization that tells you  
22 that prevailing rates can be accurately  
23 and fairly estimated?

24 MR. BURKE: I object to form.

25 A. Going back to the evidence that

1 exists during the class period, we've  
2 talked about the asymmetric information,  
3 we've talked about the conflict of  
4 interest, and as a result all of that  
5 points to setting up a neutral centralized  
6 clearing database in which there is no  
7 opportunities for manipulation. And under  
8 those circumstances, the information  
9 database that would be created and the  
10 intent of the creation of this FAIR  
11 database is one that would avoid the  
12 asymmetric information and create  
13 transparency, eliminate conflicts of  
14 interest, and would be expected as a  
15 result to accurately report the schedules  
16 or the cumulative probability  
17 distributions for the actual transaction  
18 database for out-of-network services.

19 Q. Based on the response you just  
20 gave, am I right to understand that you  
21 haven't reviewed any evidence of the work  
22 that happens been done by the nonprofit  
23 organization; is that correct?

24 A. Reviewed any specific work? You  
25 don't see it cited in my report so I

1 haven't relied on it. I've certainly  
2 reviewed the reports of other experts in  
3 this matter and in particular with regard  
4 to any formulaic methodology for  
5 estimating class-wide damages that  
6 ultimately in the but-for world there is  
7 no conflicts of interest, there is a  
8 centralized clearing database, there is no  
9 monopolization of that data, and as a  
10 result that formulaic methodology for  
11 measuring the but-for UCR rates is what  
12 you would expect to come out of this new  
13 institution that's being created.

14 Q. Have you personally had any  
15 contacts with the newly formed nonprofit  
16 organization?

17 A. No.

18 MR. LIPTON: Thank you.

19 I have nothing further.

20 MR. WHATLEY: Thank you for being  
21 efficient.

22 THE VIDEOGRAPHER: The time on  
23 the video monitor is 11:17 a.m.

24 We are off the record.

25 (Whereupon a break was taken)

# **EXHIBIT I**

99eeamaF. TXT

1

99EEAMA1  
1 UNITED STATES DISTRICT COURT  
1 SOUTHERN DISTRICT OF NEW YORK  
2 -----X  
2 THE AMERICAN MEDICAL  
3 ASSOCIATION, et al.,  
3  
4 Plaintiffs,  
4  
5 v. 00 CV 2800(LMM)  
5  
6 UNITED HEALTHCARE CORPORATION,  
6 et al.,  
7  
7 Defendants.  
8 -----X  
8

September 14, 2009  
10:20 a.m.

10 Before:

11 HON. LAWRENCE M. MCKENNA,  
12 District Judge

13 APPEARANCES

14 POMERANTZ HAUDEK BLOCK GROSSMAN & GROSS  
15 Attorneys for the AMA Plaintiff and Individual Class  
15 Plaintiffs  
16 BY: STANLEY GROSSMAN  
16 D. BRIAN HUFFORD  
17 ROBERT AXELROD  
17  
18 WILENTZ, GOLDMAN & SPITZER  
18 Attorneys for Plaintiffs and Individual Class  
19 Plaintiffs/Objectors  
19 BY: BARRY M. EPSTEIN  
20 BARBARA QUACKENBOS  
20  
21 WEIL GOTSHAL & MANGES, LLP  
21 Attorneys for Defendants United Healthcare, Inc., et al.  
22 BY: JEFFREY KLEIN  
22 NICHOLAS J. PAPPAS  
23 MARTIN GEAGAN  
23  
24 THE ALPERT LAW FIRM  
24 Co-Counsel Objecting to the settlement  
25 BY: JONATHAN L. ALPERT  
25 PAUL SOD

SOUTHERN DISTRICT REPORTERS, P.C.  
(212) 805-0300

2

99EEAMA1  
1 A P P E A R A N C E S (continued)  
2 CUNEO GILBERT & LADUCA  
2 Attorneys for Settling Class Plaintiffs  
3 BY: DAVID STANLEY  
3  
4 SILLS CUMIS & GROSS, PC  
4 Attorneys for Settling Class Plaintiffs  
Page 1

99eeamaF.TXT

18 came back and said, yeah, well, there is an extra 200 million  
19 and delta on these particular ones or whatever.  
20 But the point is they could have been on that list and  
21 they weren't. They have -- the idea that all delta is is a  
22 general concept, that's not good enough. You asked for  
23 accuracy because you can't really get to the next stage without  
24 that accuracy. We've got to know what claims, because that's  
25 the only way that you identify who gets notice. And somewhere

SOUTHERN DISTRICT REPORTERS, P. C.

(212) 805-0300

85

99EAMAC3

1 along the line someone's going to have to decide, how are we  
2 going to administer this? Who's going to decide whether this  
3 person gets reimbursement or not?

4 So at the minimum we have to identify which are in and  
5 which are out. It's not just this broad, fuzzy, let's feel  
6 good about the delta and the settlement. It's we're past that.  
7 We're at the point where you've asked for and you have not  
8 gotten from UHC the specifics.

9 And that's really all I have to say. Thank you.  
10 MR. EPSTEIN: Your Honor, if we could have until  
11 October 1st to submit a reply brief, we would appreciate it, in  
12 response to some of the things that were said here for the  
13 first time, as well as what have you, I ask for a couple extra  
14 days because of the Jewish holidays.

15 THE COURT: October 1?

16 MR. EPSTEIN: October 1, thank you.

17 THE COURT: Will that be the last thing I see?

18 MR. EPSTEIN: Hopefully, your Honor.

19 THE COURT: I don't want to leave some open-ended  
20 briefing.

21 MR. GROSSMAN: Well, I think we'd like an opportunity,  
22 if necessary, to file a brief reply, your Honor.

23 THE COURT: Any reply -- and this will be, you know,  
24 like final answer, last word -- by October 8th, either from you  
25 or from Weil Gotshal.

SOUTHERN DISTRICT REPORTERS, P. C.

(212) 805-0300

86

99EAMAC3

1 MR. GROSSMAN: Very good.

2 THE COURT: If you combine it, that's fine.

3 MR. GROSSMAN: Your Honor, I realize that the hour is  
4 late and we're approaching the lunch hour, but I want to get on  
5 that list of yours of the two or three lawyers who say very  
6 little in the time they might otherwise have. So please  
7 indulge me. I will say just a few words on some of the points  
8 that I think need to be made here.

9 And I think the first point I'd like to make is, as I  
10 sit here and I listened to Mr. Foster's presentation and I  
11 observed his presentation, I wonder what this case would look  
12 like some years down the line if it's not settled and we have  
13 to prove what under-reimbursements really were. Because,  
14 again -- and I know we've been through this any number of  
15 times -- the delta is not what we would be seeking recovery for  
16 at trial.

17 Dr. Goldstein told us how we'd have to do that. He  
18 testified clearly on that stand that we'd have to take each of  
19 these thousands of CPT codes in each of the zip codes in the  
20 country for each of the years in question and we would have to  
21 make a calculation as to what the proper under-reimbursement  
22 was. Now, that is a most simple task. It doesn't lend itself

99eeamaF.TXT

23 to generalities. It doesn't lend itself to averages. We have  
 24 in that connection the Code Blue report of the Attorney General  
 25 who did that on a very limited sampling basis, and we saw that

SOUTHERN DISTRICT REPORTERS, P.C.  
 (212) 805-0300

87

99EAMAC3

1 for certain CPT codes, in one geographic area he calculated  
 2 there was an under-reimbursement, but for that very same CPT  
 3 code at the very same time period and another geographic area,  
 4 there was no under-reimbursement.

5 So I say that because I just wonder how we're going to  
 6 do this and how long it's going to take and how many years  
 7 hence before that kind of a thing is really developed. Nobody  
 8 has attempted to do that study in this case. Nobody attempted  
 9 to do it in Health Net, and to my knowledge -- and Mr. Foster  
 10 or Mr. Goldstein have been all over the country doing these  
 11 things. To my knowledge there is no case where that has been  
 12 done on a classwide basis.

13 So, now again, Mr. Foster says we have this fuzzy  
 14 concept of the delta --

15 THE COURT: You've opened yourself up to question.  
 16 The five reimbursement -- five or six, I can't remember -- five  
 17 or six reimbursement policy codes that you selected --

18 MR. GROSSMAN: Yes.

19 THE COURT: -- what distinguishes them from the other  
 20 reimbursement policy codes?

21 MR. GROSSMAN: Yes, your Honor. I'm about to answer  
 22 but I see my colleague is popping up.

23 MR. PAPPAS: Your Honor, the concept we applied -- and  
 24 it is six, by the way, five in addition to the multiple  
 25 surgery. The concept we applied was a situation where in an

SOUTHERN DISTRICT REPORTERS, P.C.  
 (212) 805-0300

88

99EAMAC3

1 out-of-network situation, there was a limitation to the amount  
 2 charged by the provider as opposed to an increase or a denial.  
 3 And that was the concept that we applied, and we thought -- and  
 4 in addition to that, your Honor, those were the precisely the  
 5 type of reimbursement policies that had been litigated for  
 6 years in this case. The multiple surgery, professional  
 7 technical assistant surgeon, you know, anesthesia, those are  
 8 issues that they actually litigated. And their many class  
 9 members exhausted those claims, and we submitted information  
 10 about that, so that's how we identified those.

11 THE COURT: Okay.

12 MR. GROSSMAN: Now, your Honor, getting back to this  
 13 fuzzy, fuzzy delta, I mean, yes, your Honor asked for and is  
 14 entitled to as accurate a number as the parties can get up on  
 15 that. But the fact remains that that is really this large  
 16 perimeter, this delta, within which the actual damages will be  
 17 calculated ultimately, according to the type of procedure that  
 18 Mr. Goldstein testified to. I mean, it's no different from the  
 19 many security cases your Honor has seen where there's a drop in  
 20 price of the stock following the fraud. I would call that the  
 21 delta in the securities case. But as your Honor knows, after  
 22 much litigation, expert testimony and the like, some piece of  
 23 that and only some piece of that ultimately is attributable to  
 24 recovery.

25 Now, this is not the Grossman protocol. I'd like to

SOUTHERN DISTRICT REPORTERS, P.C.  
 (212) 805-0300

# **EXHIBIT J**





BRINGING FAIRNESS, ACCURACY AND TRANSPARENCY TO HEALTH INSURANCE INFORMATION

June 7, 2010

Dear MDR and PHCS Customers:

As you know, due to the 2009 settlement between Ingenix, Inc. and the New York State Attorney General, Ingenix will soon be discontinuing its MDR and PHCS product lines. FAIR Health, Inc., the not-for-profit organization created as part of the settlement, will be assuming ownership of the MDR and PHCS databases later this year and will be releasing its first set of benchmarking products as of January 1, 2011.

We are writing to formally introduce ourselves to you and to update you on FAIR Health's progress. We intend for this letter to serve as the first of many communications with you as we prepare for our first product release, and we look forward to an ongoing dialogue about our progress.

As we assume our mission, one of FAIR Health's primary goals is to develop high quality data products that fulfill the needs of our customers. Stated simply, we want to earn your business and will work to maintain it by offering robust products in a client-focused environment, meeting high standards of customer service.

A second and equally important goal is to help ensure that your transition from Ingenix's MDR/PHCS products to FAIR Health's product line is as smooth and seamless as possible. We are committed to minimizing any disruptions to your normal business processes and have based many of our planning decisions on that commitment.

To that end, we would like to reassure you that:

- The products that we release on January 1st will reflect a narrow set of refinements to Ingenix's current methodology for establishing rate benchmarks. Summaries of these methodologies will be available on our website, [www.fairhealthus.org](http://www.fairhealthus.org), beginning this summer, and we intend to offer you detailed previews on how our methods will affect the FAIR Health rate tables starting this fall.
- FAIR Health's product modules in 2011 will mirror Ingenix's existing product modules and our release schedule for each module should be identical to the schedule to which Ingenix has been

adhering. With customer input and advance notification, we plan to introduce in late 2011 additional and revised product offerings for distribution in 2012.

- We understand that any changes to technical specifications regarding the product line have direct impacts on your business processes and IT systems. For our initial product releases, we do not plan to alter the format in which you currently receive digital MDR/PHCS data from Ingenix.
- Similarly, we do not in the near term plan to change the format in which data contributors submit data to us, nor do we plan to materially alter the basic contours of the 2011 data contribution incentive program.
- By necessity, there will be some aspects of the process that will change. For example, beginning January 1<sup>st</sup>, the network location of data vault and FTP sites will change to reflect FAIR Health servers instead of Ingenix servers.

Now and in the future, we are committed to providing you at all stages with sufficient lead time to understand the impacts of any changes and plan accordingly. Again, this decision is reflective of our serious intent to minimize any disruption you experience as you transition to FAIR Health's products.

We are proud of the progress we have made in the approximately seven months since our creation. We have recruited an extremely talented staff with diverse professional backgrounds and have secured highly qualified external expertise for the fulfillment of certain critical business functions attendant to customer needs.

Having laid this foundation, we are looking forward to developing our relationship with you in the months ahead. The next formal communication you will receive from us will contain summaries of the methodologies we have developed for deriving our rate benchmarks. Subsequent communications will involve a schedule of fall seminars for you to preview our 2011 products as well as details on our contracting process.

If at any time you have questions about these or other matters, please do not hesitate to reach out to us by contacting Ashley Smyth at [asmith@fairhealthus.org](mailto:asmith@fairhealthus.org).

In the spirit of FAIR Health's mission, we look forward to an open and collaborative relationship with you.

Sincerely,

Robin Gelburd  
President  
FAIR Health, Inc.